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OF THE

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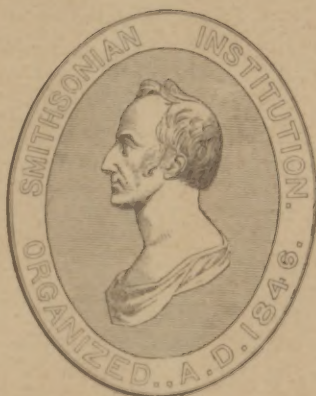
OF

THE EAST COAST OF

N O R T H A M E R I C A .

BY

THEODORE GILL, M.D., PH.D.



WASHINGTON:

PUBLISHED BY THE SMITHSONIAN INSTITUTION.

1873.

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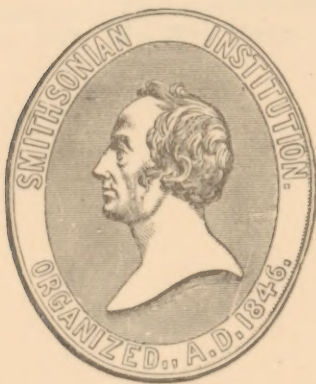
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ADVERTISEMENT.

THE following Catalogue of the Fishes of the east coast of North America was prepared by Dr. Theodore Gill as an Appendix to the report of the U. S. Commissioner of Fish and Fisheries for 1871-2.* Numerous applications having been made for separate copies of the catalogue, it is now issued as one of the publications of the "Smithsonian Miscellaneous Collections."

JOSEPH HENRY,
Secretary S. I.

* United States Commission of Fish and Fisheries.—Part I.—Report on the Condition of the Sea Fisheries of the South Coast of New England in 1871 and 1872. By Spencer F. Baird, Commissioner.—With supplementary papers.—Washington: Government Printing Office. 1873. (Pp. 779—822=pp. 1—44 of Catalogue.)

CATALOGUE OF THE FISHES OF THE EAST COAST OF NORTH AMERICA.

BY THEODORE GILL.

SCOPE OF CATALOGUE.

The following catalogue may be considered as a new edition of a "Catalogue of the Fishes of the Eastern Coast of North America from Greenland to Georgia," published in 1861, inasmuch as it covers the same ground; but, as it has been entirely recast, and expresses the results of the author's own studies as well as those of others, since the date of its publication, it is essentially a new work.

LITERATURE.

The literature of American ichthyology is quite voluminous, but it is in great part represented in the periodical literature (publications of learned societies and scientific magazines) and by monographic essays or isolated descriptions of genera and species. Exclusive of such articles, there are three principal classes of publications which contain descriptions or references to more or less of the species described:

1. Works on fishes in general.
2. Works on American fishes in general.
3. Works on faunas, or relating to states, &c.

1. The general works on fishes, commencing with Willoughby and Ray, and continued by Artedi, (1738,) Klein, (1740-'49,) Linné, (1748-68,) Bloch, (1782-'95,) Haüy, (1787,) Bonnaterre, (1788,) Gmelin, (1788,) Walbaum, (1792,) Lacépède, (1798-1803,) Bloch and Schneider, (1801,) Shaw, (1803-'04,) Cuvier and Valenciennes, (1828-'49,) A. Duméril, (1865-'70,) and Günther, (1859-'70,) successively included the species known to them and described by previous naturalists, and the last works include, on the whole, the best descriptions (because comparative) of many of the species. All these works are by foreign authors*.

2. The general works on North American fishes, in whole or part, are by De Kay, Storer, and Gill.

3. The more restricted faunal works, or those relating to specific districts and States, are more numerous, but of very unequal value, some containing descriptions of all the species as well as the including groups,

* A complete bibliographical catalogue of these works is given by the author of the present article in an "Arrangement of the Families of Fishes," published by the Smithsonian Institution.

while others are simple lists of species, to a great degree dependent for their value on the reputation of their authors for knowledge and reliability.

DOUBTFUL SPECIES.

The names of many of the species are still very unsettled or require confirmation. The doubts arise principally from two sources:

1. Erroneous identification with previously-described species.
 2. Erroneous differentiation from previously-described species.
- Both categories of errors mostly result from two causes:

1. From default of actual comparison of specimens representing the different forms.

2. From erroneous valuation of certain similarities or differences which may exist between the respective forms; in some cases (*a*) the differential characters having been overlooked or subordinated to the common characters, while in others (*b*) differences which may be observed on comparison of isolated specimens are not confirmed by larger series, or fail to apply to forms from intermediate regions.

As might be expected from these considerations, the doubts affect chiefly (1) the species found in the temperate or arctic regions, and which are represented by forms in both hemispheres; and (2) those of large size, represented also in both hemispheres, or inhabitants of the open sea.

The author has not at present the means to solve all these doubts for others or to satisfy himself. While the material for the American forms is often ample, that for the European or exotic types (chiefly in the case of the large sharks, rays, and scombroids) is, in several cases, insufficient. Therefore he has preferred to retain the names given to the American forms as distinct species, although he is inclined to believe that they will be eventually found to be co-specific with other forms. For the guidance of others, these doubtful forms are indicated in the following catalogue, the nature of the doubt being distinguished, whether referring to the more or less dubious distinction of the nominal species, (*d. s.*), or whether to the dubious identification of the form with another, (*d. @ s.*) Although these stigmas are cast on a number of the names admitted, it is not probable that future comparisons will necessitate changes for most or even a large proportion. Nevertheless, the desirability of a settlement of the doubts one way or the other is not the less decided.

The opportunity for the settlement of some of these questions at least will, however, soon be furnished, as specimens of the desirable species have already been promised, or are on their way from Europe, and in a future report the results of the comparisons may be made known. To the efforts of the Commissioner of Fisheries we have been indebted for the means of determining some of the doubtful questions earlier than would otherwise have been possible, and we will soon have the means

of determining others. And as these questions involve several of the species most important in an economical point of view, and as their determination may further throw much light on their geographical distribution and their consequent relations to each other, physiological as well as anatomical, their solution will be no slight boon to science.

CLASSIFICATION.

The classification adopted is that proposed by the author in his "Arrangement of the Families of Fishes," (1872,) published by the Smithsonian Institution, and differs in many respects from that employed in the "Catalogue of the Fishes of the Eastern Coast of North America," (1861.) While, however, it is believed to be a much better exponent of the real relations of the various forms, it is far from perfect, and little attempt has been made to exhibit the forms in a natural sequence; but, to some extent, the task has been attempted. It is necessary to add, in further explanation, that the series is an *inverted ascending one*, (and not a true descending one);—that is, commencing with the most generalized (or lowest) form, the various types have been successively approximated in accordance with their affinities (or supposed affinities) to the preceding forms; but, inasmuch as almost universal usage has accustomed the ichthyologist to look for the specialized (or highest) forms first, they have been so exhibited in the catalogue, subject to the modifications the mode of procedure adopted entails.

NUMBER OF SPECIES.

It will be perceived that only about 351 nominal species are enumerated in the present catalogue, while 394 were given in the catalogue published in 1861, and yet about 50 species have been added since that time. The diminished number is the result of reduction and reference of many nominal species to their proper types, and it is due to the author to state that the necessity for most of those changes was foreseen by him,* and that they were either first effected or the correctness thereof first demonstrated by himself in various articles published from time to time in scientific journals. The limit of reduction, so far as respects species represented on the coast, has now been nearly (but not quite) reached; but the ultimate reductions, already hinted at, will doubtless affect, to some inconsiderable extent, the sum-total of the number of fishes by the reduction of nominal American species to forms of those previously described from elsewhere.

FAUNAS.

The geographical ranges of the marine species of animals might be best indicated by the names of the faunal regions admitted for the sev-

* "The number of species described in the catalogue [of 1861] nominally amounts to 394. It is probable that when the species are thoroughly investigated, the number will be considerably reduced, and that many now retained with hesitation as distinct will be identified with previously known ones."—(Gill, op. cit., 1861, p. 28.)

eral subdivisions of the eastern American coast by various naturalists, but especially Dana, Packard, and Verrill.*

Five such faunas are embraced in the scope of the catalogue, and have been designated by the following names:

1. ARCTIC FAUNA, (properly realm,) which embraces the entire polar region, and extends southward to a yet undetermined distance, but not as far as Newfoundland. Inasmuch, however, as most of the fishes found in the Greenland seas have not been noted as occurring elsewhere, it would be advisable to be specific as to their habitats.

2. SYRTENSIAN FAUNA, distinguished by Packard from the Arctic. It includes the coasts of Labrador and Newfoundland, but its limits have not been well defined.

3. ACADIAN FAUNA, named by Lütken, but first distinguished as the Nova Scotian by Dana. It extends from the Syrtensian southerly to Cape Cod, close to the shore, but pushes farther southward in deeper water, and at a distance from the shore.

4. VIRGINIAN FAUNA, bounded to the north by Cape Cod and to the south by Cape Hatteras.

5. CAROLINIAN FAUNA, extending from Cape Hatteras southward to the northern limits of the coral-reefs of Florida.

It must also be borne in mind that the general character of the coast of the northern faunal areas is quite different from that of the southern ones, the former having a rock-bound shore-line, while the latter (Virginian and Carolinian) have chiefly an areniferous one, with few rocks, and the distinctive peculiarities of the northern and southern faunas are considerably increased by these physical differences of the coast.

Such are the designations that might be most desirable in a scientific treatise. In order, however, to avoid all cavil, the circumlocutory form of designating the limits of the faunas for each species has, at the instance of the Commissioner of Fisheries, been adopted. But it must be understood that many of the species have not been detected at the different points within the limits specified, and may have been only found once. In all cases, however, (except when specially designated as "accidental" or "occasional,") the species, in all probability, can be found at fitting stations within the described limits.

POPULAR NAMES.

The popular names, so far as known, have been added after the scientific ones, and in a number of cases, at the request of the Commissioner of Fisheries, names for popular use have been framed for species having no other distinctive ones. These new terms have been mostly derived from names applied to related forms in this country or England, which are used rather in a generic than specific sense, and with the addition of a

* Verrill (Addison E.) Revision of the Polypteri of the Eastern Coast of the United States (December, 1863). <Memoirs read before the Boston Society of Natural History, vol. 1, p. 41.

qualifying adjective for the specific appellatives. It must always be borne in mind, however, that popular names can never be relied upon for the determination of the species, as they vary with locality, and are applied in the most arbitrary manner. Thus, the familiar *Pomatomus saltatrix* is generally known as the "blue fish" at the principal centers of population, (New York, &c.,) but is also called "horse mackerel," (at Newport, and Beesley's Point, New Jersey,) "tailor," (at Philadelphia and along portions of the southern coast,) "white fish," "snap-mackerel," and in the young state, "skip-jack;" while, on the other hand, the name "blue fish" is applied to the squeeteague, or weak fish, (*Cynoscion regalis*,) at Beesley's Point; "horse mackerel" is transferred to the tunny, along the Massachusetts coast; "tailor" is the name given to the fall herring, (*Pomolobus mediodoria*,) at Washington, and the designation "white fish" is best known in connection with the *coregoni*. Nor are these exceptional cases. Many fishes have still more varied names along the several parts of the coast, and certain appellatives (such as sun-fish, black-fish, pike, salmon, trout, &c.) are used with still greater latitude than any of those specified.

Under such circumstances it must be obvious to all that, in order to avoid great circumlocution and preliminary explanation, and to insure definiteness of conception, names that are used only in one rigorous sense, and respecting the application of which there can be no doubt, must be *desiderata*, and such conditions are only fulfilled by the scientific names. At the same time, it is undoubtedly desirable that the applications of the popular names along the different portions of the coast shall be ascertained, and therein an explanation may be found of the conflicting accounts given of the different species, the confusion in which the histories of some species is involved being evidently due, in part, to the confusion of names and the misapplication of accounts induced by their diverse applications. The unraveling of this confusion will be one of the objects of the Commissioner, and on a future occasion the varying names and applications of names along different parts of the coast will probably be given in connection with the different species.

I.—TABLE OF THE HIGHER GROUPS.

CLASS A.—PISCES OR TRUE FISHES.

SUB-CLASS I.—TELEOSTEI.

ORDER 1.—PEDICULATI.

Sub-order.	Super-family.	Family.	Sub-family.	Genus.
	Lophioidea	Maltheidae . . . (1)	Maltheinæ	Malthæ <i>Cuv.</i>
		Lophiidae (2)	.....	Lophius (<i>Linn.</i>) <i>Cuv.</i>
	Antennarioidea . .	Ceratiidae (3)	.....	Himantolophus <i>Reinh.</i>
				Oneirodes <i>Lütken.</i>
				Ceratias <i>Kroyer.</i>
		Antennariidae . (4)	Antennariinæ . . .	Pterophyrus <i>Gill.</i>

ORDER 2.—PLECTOGNATHI.

Gymnodontes	Orthagoriscoidea	Orthagoriscidae (5)	Molacanthinæ . . .	Molacanthus <i>Siv.</i>
			Orthagoriscinæ . .	Mola <i>Cuv.</i>
	Tetrodontoidea . .	Diodontidae . . . (6)	Diodontinæ	Chilomycterus <i>Bibron.</i>
				Trichodiodon <i>Bleeker.</i>
		Tetrodentidae . (7)	Tetrodontinæ . . .	Tetrodon <i>Linn.</i>
				Chilichthys <i>Müll.</i>
Ostracoderma . . . .	.....	Ostraciontidae . (8)	Ostraciontinæ . . .	Lactophrys <i>Swains.</i>
Scleroderma	Balistoidea	Balistidae (9)	Monacanthinæ . . .	Aluterus <i>Cuv.</i>
				Ceratacanthus <i>Gill.</i>
				Stephanolepis <i>Gill.</i>
			Balistinæ	Balistes <i>Linn.</i>

ORDER 3.—LOPHOBRANCHII.

Syngnathi . . . . .	.....	Hippocampidae (10)	Hippocampinæ . . .	Hippocampus <i>Cuv.</i>
		Syngnathidae . (11)	Syngnathinæ	Syngnathus <i>Linn.</i>

ORDER 4.—HEMIBRANCHII.

	Centriscioidea . . .	Centriscidae . . (12)	.....	Centriscus <i>Linn.</i>
	Aulostomoidea . . .	Fistulariidae . (13)	.....	Fistularia <i>Linn.</i>
	Gasterosteioidea . .	Gasterosteidae (14)	Gasterosteinæ . . .	Gasterosteus (<i>L.</i>) <i>Brev.</i>
				Pygosteus, <i>Brev.</i>
				Apeltes (<i>De Kay</i>) <i>Brev.</i>

ORDER 5.—TELEOCEPHALI.

Sub-order.	Super-family.	Family.	Sub-family.	Genus.		
Heterosomata...		Soleidæ (15)	Plagusinæ.....	<i>Plagusia</i> <i>Cuv.</i>		
			Soleinæ	<i>Achirus</i> <i>Lac.</i>		
		Pleuronectidæ (16)	Pleuronectinæ ..	<i>Enchalarodus</i> <i>Gill.</i>		
				<i>Pseudopleuronectes</i> <i>Btkr.</i>		
				<i>Myxopsetta</i> <i>Gill.</i>		
				<i>Limanda</i> <i>Gottsche.</i>		
				<i>Pleuronectes</i> <i>Linn.</i>		
				<i>Glyptocephalus</i> <i>Gottsche.</i>		
				<i>Rhamphus</i>		
				<i>Lophopsetta</i> <i>Gill.</i>		
				<i>Citharichthys</i> <i>Blecker.</i>		
				Hippoglossinæ ..	<i>Hippoglossoides</i> <i>Gottsche.</i>	
					<i>Pomatomsetta</i> <i>Gill.</i>	
					<i>Chenopsetta</i> <i>Gill.</i>	
					<i>Hippoglossus</i> <i>Cuv.</i>	
					<i>Reinhardtius</i> <i>Gill.</i>	
Macruroidea ...	Macruridæ... (17)	.....	<i>Macrurus</i> <i>Bl.</i>		
Jugulares.....	Gadoidea.....	Gadidæ (18)	Gadinae	<i>Boreogadus</i> <i>Günth.</i>		
				<i>Pollachius</i> <i>Niss.</i>		
				<i>Gadus</i> (<i>Artedi</i>) <i>Gill.</i>		
				<i>Microgadus</i> <i>Gill.</i>		
				<i>Melanogrammus</i> <i>Gill.</i>		
			Phycinæ.....	<i>Phycis</i> <i>Raf.</i>		
				<i>Urophycis</i> <i>Gill.</i>		
			Lotinæ.....	<i>Molya</i> <i>Forsk. Nils.</i>		
			Ciliatinæ.....	<i>Onos</i> <i>Risso.</i>		
				<i>Rhinonemus</i> <i>Gill.</i>		
				<i>Ciliata</i> <i>Couch.</i>		
			Brosminæ.....	<i>Brosminus</i> <i>Cuv.</i>		
			Merluccidæ... (19)	Merluccinæ ..	<i>Merluccius</i> <i>Raf.</i>	
					<i>Ophidium</i> (<i>Artedi</i>) <i>Linn</i>	
			Ophidioidæ	Ophidiidæ... (20)	
			Brotuloidæ	Brotulidæ... (21)	Bythitinæ.....	<i>Bythites</i> <i>Reinh.</i>
Lycodoidea ...	Lycodidæ ... (22)	Gymnelinæ ...	<i>Gymnelis</i> <i>Reinh.</i>			
		Lycodinæ.....	<i>Lycodes</i> <i>Reinh.</i>			
		Zoarcinæ.....	<i>Zoarces</i> <i>Cuv.</i>			
Acanthopteri....	Blennioidea ...	Cryptacanthidæ (23)	.....	<i>Cryptacanthodes</i> <i>Storck.</i>	
			.....	<i>Eumesogrammus</i> <i>Gill.</i>	
		Stichæidæ.... (24)	.....	<i>Stichæus</i> <i>Reinh.</i>	
			.....	<i>Leptoclinus</i> <i>Gill.</i>	
			.....	<i>Anisarchus</i> <i>Gill.</i>	
			.....	<i>Lumpenus</i> <i>Reinh.</i>	

ORDER 5.—TELEOCEPHALI—Continued.

Sub-order.	Super-family.	Family.	Sub-family.	Genus.
Acanthopteri ..	Blennioidea	Stichæidæ (24)	.....	Leptoblennius Gill.
				Centrolennius Gill.
		Xiphidiontidæ .. (25)	.....	Muraenoides Lac.
		Anarrhichadidæ. (26)	.....	Anarrhichas L.
		Blenniidæ (27)	Blenniinae	Blennius Linn.
				Hypleurochilus Gill.
				Pholis (Arted.) Cuv.
				Hypoblennius Gill.
				Chasmodes Cuv. & Val.
	Batrachoidæ	Batrachidæ (28)	.....	Batrachus Linn.
	Uranoscopoidæ ..	Uranoscopidæ .. (29)	.....	Astroscopus Brevoort.
	Cyclopteroidea ..	Cyclopteridæ .. (30)	Cyclopterinae ..	Cyclopterus Linn.
				Eumicrotremus Gill.
		Liparididæ (31)	Liparidinae	Liparis (Art.) Linn.
				Actinobich Gill.
			Careproctinae ...	Careproctus Kroyer.
	Gobioidæ	Gobiidæ (32)	Gobiinae	Gobiosoma Girard.
				Gobius (Linn.) Gill.
			Eleotridinae	Dormitator Gill.
	Cottoidea	Triglidæ (33)	Dactylopterinae ..	Dactylopterus Lac.
			Triglinae	Prionotus Lac.
				Trigla Linn.
		Agonidæ (34)	Leptagoninae...	Aspidophoroides Lac.
			Agoninae	Agonus Bloch.
		Cottidæ (35)	Cottinae	Cottus (Linn.)
				Oncocottus Gill.
				Gymnacanthus Sw.
				(Cottus) Reinh.
				Triglops Reinh.
		Hemitripteridæ .. (36)	.....	Hemitripterus Cuv.
		Scorpenidæ (37)	Scorpeninae	Sebastes (Cuv.) Gill.
				Scorpena Linn.
	Labroidæ	Labridæ (38)	Labrinae	Tautoga (Mitch.) Becker.
				Tautogolabrus Gunther.
			Xyrichthyinae...	Xyrichths Cuv.
			Julidinae	Cherophilus Gill.
				Glyphidodon Lac.
		Pomacentridæ (38a)	.....
	Polynematoidea ..	Polynemidæ (39)	.....	Trichidion (Klein.) Gill.
	Tenuthidoidea ..	Tenuthididæ (40)	.....	Acanthurus Forskal.
	Chaetodontoidea ..	Chaetodontidæ .. (41)	Chaetodontinae ..	Sarothrodus Gill.
				Holacanthus Lac.

ORDER 5.—TELEOCEPHALI—Continued.

Sub-order.	Super-family.	Family.	Sub-family.	Genus.
Acanthopteri	Scombroidea ...	Xiphiidæ (42)	Xiphiinæ	<i>Xiphias</i> Linn.
			Tetrapturinae ...	<i>Tetrapturus</i> Raf. <i>Histiophorus</i> Lac.
		Trichiuridæ .. (43)	Trichiurinae	<i>Trichiurus</i> Linn.
		Scombridæ ... (44)	Scombrinae	<i>Scomber</i> (Linn.) Cuv.,
			Oreyninae	<i>Sarda</i> Cuv. <i>Oreynus</i> (Cuv.) Gill. <i>Cybium</i> Cuv.
			Carangidæ ... (45)	Vomerinae
		Carangidæ ... (45)	Vomerinae	<i>Vomer</i> Cuv. <i>Selene</i> (Lac.) Brev. <i>Argyrosus</i> Lac.
			Caranginae	<i>Decapterus</i> Blecker. <i>Trachurops</i> Gill. <i>Paratractus</i> Gill. <i>Carangus</i> (Girard) Gill. <i>Carangops</i> Gill. <i>Blepharichthys</i> Gill.
			Chloroscombrinae	<i>Chloroscombrus</i> Girard.
			Trachynotinae ..	<i>Trachynotus</i> Lac.
			Centronotinae ...	<i>Naucrates</i> (Raf.) Gill. <i>Zonichthys</i> (Sw.) Gill. <i>Halatractus</i> Gill.
		Coryphænidae (46)	Coryphæninae ..	<i>Coryphæna</i> Linn.
		Stromateidæ (47)	Centrolophinae ..	<i>Palinurichthys</i> Gill.
			Stromateinae	<i>Poronotus</i> Gill. <i>Peprilus</i> Cuv.
		Bramidæ (48)	Pteraclinae	<i>Pteraclis</i> Gron.
		Lamprididæ .. (49)	.....	<i>Lampris</i> (Retz.)
		Zenidæ (50)	.....	<i>Zenopsis</i> Gill.
	Mulloidæ	Mullidæ (51)	.....	<i>Mullus</i> Linn.
	Berycoidea	Berycidæ (52)	Holocentrinae ...	<i>Holocentrum</i> Bloch.
	Sciænoidea	Sciænidaæ (53)	Otolithinae	<i>Cynoscion</i> Gill.
			Haplodonotinae .	<i>Pogonias</i> Lac.
			Liostominae	<i>Liostomus</i> Lac.
			Sciæninae	<i>Stelliferus</i> (Cuv.) Stark <i>Bairdiella</i> Gill. <i>Sciænops</i> Gill. <i>Menticirrhus</i> Gill. <i>Micropogon</i> Cuv.
			Lariminae	<i>Larimus</i> Cuv. & Val.
	Gerricidea	Gerridæ (54)	.....	<i>Eucinostomus</i> B. & G.

ORDER 5.—TELEOCEPHALI—Continued.

Sub-order.	Super-family.	Family.	Sub-family.	Genus.
Acanthopteri	Percoidæ	Pimelepteridæ (55)		Pimelepterus <i>Lac.</i>
		Sparidæ (56)	Sparinæ	Lagodon <i>Holb.</i>
				Archosargus <i>Gill.</i>
				Stenotomus <i>Gill.</i>
				Sparus (<i>Linn.</i>) <i>Bon.</i>
		Pristipomatidæ (57)	Lutjaninæ	Lutjanus (<i>Bl., Schn.</i>) <i>Gill.</i>
			Pristipomatinae	Hemulon <i>Cuv.</i>
				Orthopristis <i>Girard.</i>
				Pristipoma <i>Cuv.</i>
				Anisotremus <i>Gill.</i>
		Serranidæ (58)	Rhypticinæ	Promicropterus <i>Gill.</i>
			Serraninæ	Hyporthodus <i>Gill.</i>
				Epinephelus <i>Gill.</i>
				Trisotropis <i>Gill.</i>
				Centropristis <i>Cuv.</i>
				Triloburus <i>Gill.</i>
				Diplectram <i>Holbr.</i>
				Dules <i>Cuv.</i>
		Labracidæ ... (59)		Roeus <i>Gill.</i>
				Morone <i>Gill.</i>
Incertæ sedis	Ammodytoidea ..	Ephippiidæ .. (60)		Parephippus <i>Gill.</i>
		Lobotidæ (61)		Lobotes <i>Cuv.</i>
		Pomatomidæ . (62)		Pomatomus <i>Lac.</i>
		Elacatidæ (63)		Elacate <i>Cuv.</i>
		Chilodipteridæ (64)	Apogoninæ	Apogonichthys <i>Bleeker.</i>
	Priacanthoidea ..	Priacanthidæ (65)		Priacanthus <i>Cuv.</i>
				Pseudopriacanthus <i>Bleeker</i>
	Echeneidoidea ..	Echeneididæ . (67)	Ammodytinæ ...	Ammodytes <i>Linn.</i>
			Argyrotæninæ ..	Argyrotænia <i>Gill.</i>
				Leptecheneis <i>Gill.</i>
				Rhombochirus <i>Gill.</i>
Percosoces	Mugiloidea	Mugilidæ (69)		Remoropsis <i>Gill.</i>
				Echeneis (<i>Linn.</i>) <i>Gill.</i>
				Sphyræna <i>Bloch.</i>
				Sphyrænoidæ . (68)
Syngnathini	Mugiloidea	Mugilidæ (69)		Mugil <i>Linn.</i>
				Chirostoma (<i>Sw.</i>)
				Atherina (<i>Linn.</i>)
				Atherina (<i>Linn.</i>)
Syngnathini	Mugiloidea	Mugilidæ (69)		Belone <i>Cuv.</i>
				Belonidæ (71)
				Scomberesocidæ (72)
Syngnathini	Mugiloidea	Mugilidæ (69)	Exocætinæ	Exocætus <i>Linn.</i>
				Halocypselus <i>Weinl'nd (d.g.)</i>
				Cypselurus <i>Sw. (d.g.)</i>

ORDER 5.—TELEOCEPHALI—Continued.

Sub-order.	Super-family.	Family.	Sub-family.	Genus.
Stenotogathi		Scomberesocidæ (72)	Hemirhamphinae	Euleptorhamphus <i>Gill.</i> Hemirhamphus <i>Cuv.</i>
			Scomberesocinae	Scomberesox <i>Lac.</i>
Haplomi	Cyprinodontoides	Cyprinodontidæ (73)	Cyprinodontinae	Cyprinodon <i>Lac.</i>
			Hydrargyrinae ..	Micristius <i>Gill.</i> Fundulus <i>Lac.</i> Hydrargyra <i>Lac.</i>
Isospondyli	Stomiatoidea	Stomiidæ ... (74)	Chauliodontinae	Malacosteus <i>Ayres.</i>
			Stomiatinae	Stomias <i>Cuv.</i>
		Scopelidæ (75)	Scopelinae	Scopelus <i>Cuv.</i>
			Cocciinae	Mauroliscus <i>Cocco.</i>
		Synodontidæ . (76)	.....	Trachinocephalus <i>Gill.</i> Synodus (<i>Gron.</i>) <i>Bl., Schn.</i>
	Salmonoidea	Microstomidæ (77)	Argentininae	Mallotus <i>Cuv.</i> Osmerus <i>Artedi.</i>
			Microstominae...	Microstoma <i>Risso.</i>
		Salmonidæ ... (78)	Salmoninae	Salmo <i>Linn.</i>
	Paralepidoidea ..	Paralepididæ. (79)	.....	Paralepis <i>Risso.</i>
	Albulidæ	Albulidæ (80)	.....	Albula <i>Gronow.</i>
	Elopoidea	Elopidæ (81)	.....	Elops <i>Linn.</i> Megalops <i>Lac.</i>
			.....	Etrumeus <i>Bleeker.</i>
	Clupeoidea	Dorosomatidæ (82)	.....	Brevoortia <i>Gill.</i>
			Clupeidæ..... (83)	Clupeinae
		Dorosomidæ . (84)	.....	Alosa <i>Cuv.</i> Opisthonema <i>Gill.</i> Pomolobus (<i>Raf.</i>) <i>Gill.</i> Clupea <i>Linn.</i>
			.....	Dorosoma (<i>Raf.</i>) <i>Gill.</i>
		Engraulidæ .. (85)	.....	Engraulis <i>Cuv.</i>

ORDER 6.—NEMATOGNATHI.

Squaroidea	Squaridæ (86)	Atinidæ	Ælurichthys <i>Bd. & Gir.</i> Ariopsis <i>Gill.</i>
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ORDER 7.—APODES.

Euchelycephali	Congridæ	(87)	Congrinae	Conger <i>Cuv.</i>
	Anguillidæ	(88)	Anguilla <i>Thunberg.</i>
	Saccopharyngidæ (89)	.....	.....	Saccopharynx <i>Mitch.</i>

SUB-CLASS II.—GANOIDEA.
SUPER-ORDER CHONDROSTEI.

ORDER 8.—GLANIOSTOMI.

Sub-order.	Super-family.	Family.	Sub-family.	Genus.
		Accipenseridæ (90)	Accipenserinæ ..	Accipenser (<i>Linn.</i>)

CLASS B.—ELASMOBRANCHII.

SUPER-ORDER PLAGIOSTOMI.

ORDER 9.—RAIÆ.

Masticura	Myliobatoidea...	Cephalopteridæ (91)		Ceratoptera Müll. & Henle.
		Myliobatidæ . (92)	Ætobatinæ	Ætobatis Müll. & Henle.
			Myliobatinæ ...	Rhinoptera Cuv.
	Trygonoidea	Trygonidæ... (93)		Myliobatis Dum.
Sarcura	Torpedinoidea...		Pteroplateinæ...	Pteroplatea Müll. & Henle.
			Trygoninæ	Trygon (<i>Adanson</i>) Cuv.
	Torpedinoidæ...	Torpedinidæ . (94)	Torpedininæ ...	Torpedo Dum.
	Raioidæ	Raiidæ (95)	Raiianæ	Raia (<i>Linn.</i>)
		Pristidæ (96)		Pristis Lath.

ORDER 10.—SQUALI.

Rhinoe		Squatidæ... (97)		Squatina Dum.
	Lamnoidea.....	Cetorhinidæ.. (98)		Cetorhinus Blainv.
		Lamnidæ..... (99)	Isurinæ	Isuropsis Gill.
				Carcharodon A. Smith.
	Galeorhinoidea..	Odontaspididæ (100)		Eugomphodus Gill.
		Alopeciidæ... (101)		Alopias Raf.
		Sphyrnidæ ... (102)		Sphyrna Raf.
				Reniceps Gill.
	Seymnoidea	Galeorhinidæ (103)	Galeorhininæ ...	Eulamia Gill.
				Aprionodon Gill.
				Scoliodon Müll. & Henle.
				Galeocerdo Müll. & Henle.
			Mustelinæ	Mustelus Cuv.
		Spinacidæ.... (104)		Squalus (<i>Artemis</i>) Raf.
				Centrosyllium Müll. & Henle.
		Seymnidæ.... (105)		Somniosus Les.

CLASS C.—MARSIPOBRANCHII.

ORDER 11.—HYPEROARTIA.

Sub-order.	Super family.	Family.	Sub-family.	Genus.
		Petromyzontidæ. (106)	Petromyzontinæ.	Petromyzon (Linn.) Gray. Ammocetes (Dum.) Gill.

ORDER 12.—HYPEROTRETA.

		Myxindæ. (107)		Myxine Linn.
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CLASS D.—LEPTOCARDII.

ORDER 13.—CIRROSTOMI.

		Branchiostomidæ. (108)		Branchiostoma Costa.
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2.—LIST OF SPECIES.

1.—MALTHEIDÆ.

MALTHE VESPERTILIO (Linn.) Cuv.—Bat-fish; nose-fish.
Newfoundland to Florida.

MALTHE CUBIFRONS Rich.—Box-headed sea-bat.
Labrador.

MALTHE NOTATA (Val.) Lütken.—Spotted sea-bat.
Southern Atlantic coast.

2.—LOPHIIDÆ.

LOPHIUS AMERICANUS DeKay.—Bellows-fish (*Newport, R. I.*); goose-fish (*Massachusetts*); monk-fish (*coast of Maine*); also fishing-frog, American angler, sea-devil, &c.
Nova Scotia to Cape Hatteras.

3.—CERATHIDÆ.

HIMANTOLOPHUS GREENLANDICUS Reinhardt.—Tufted frog-fish.
Greenland.

ONEIRODES ESCHRICHTII Lütken.—Eschricht's frog-fish.
Greenland.

CERATIAS HOLBOLLI Kroyer.—Holboll's frog-fish.
Greenland.

4.—ANTENNARIIDÆ.

PTEROPHYRNE LEVIGATA (Cuv.) Gill.—Common frog-fish; mouse-fish; pescador (*Cuba*); toad-fish; devil-fish (*Bermuda*).
Pelagic; accidental on coast.

5.—ORTHAGORISCIDÆ.

MOLACANTHUS NUMMULARIS (Walb.) Gill.—Globe-fish.
Pelagic; accidental on coast.

MOLA ROTUNDA Cuv.—Sun-fish; pez mola (*Cuba*).
Newfoundland to Cape Hatteras.

* In giving the occurrence of any species of fish, as from Cape Cod to Cape Hatteras, or between other limits, it is not necessarily to be understood that specimens have actually been taken at these extremes, but only at some point between them. They may, however, be looked for at other localities within the same range.

6.—DIODONTIDÆ.

CHILOMYCTERUS GEOMETRICUS (Linn.) Kaup.—Spiny box-fish; rabbit-fish (*Vineyard Sound*); erizo (*Cuba*).

Cape Cod to Florida.

TRICHODIODON PILOSUS (Mitch.) Bleeker.—Hairy box-fish.

Cape Cod to Cape Hatteras.

7.—TETRODONTIDÆ.

TETRODON LEVIGATUS (Linn.) Gill.—Smooth puffer; tambor (*Cuba*).

Cape Cod to Florida.

CHILICHTHYS TERGIDUS (Mitch.) Gill.—Rough puffer; porcupine-fish; blower; swell-fish; tambor (*Cuba*).

Cape Cod to Florida.

8.—OSTRACIONTIDÆ.

LACTOPHRYS TRIGONUS (Linn.) Poey.—Trunk-fish; box-fish.

West Indian; accidental on the coast (found once at Holmes's Hole, Mass).

9.—BALISTIDÆ.

ALUTERA CUSPIDATA DeKay. (d. s.)—Long-tailed file-fish.

Cape Cod to Florida.

CERATACANTHUS ALBANTLACUS (Mitch.) Gill.—hog-fish; file-fish.

Cape Cod to Florida.

STEPIANOCEPUS SETIFER (Bennett) Gill.—Storer's file-fish; fool-fish (*New York*).

Nova Scotia to Florida.

BALISTES CAPRISCUS Linn.—European file fish; Turbot (*Berm*).

Nova Scotia to Florida.

BALISTES POWELLI Cope. (d. s.)—Powell's file-fish.

Rhode Island. (Accidental.)

10.—HIPPOCAMPIDÆ.

HIPPOCAMPUS HUDSONIUS DeKay.—Sea-horse; horse-fish.

Cape Cod to Cape Hatteras.

11.—SYNGNATHIDÆ.

SYNGNATHUS PECKIANUS Storer.—Pipe-fish.

Newfoundland to Cape Hatteras.

12.—CENTRISCIDÆ.

CENTRISCUS SCOLOPAX Linn.—Snipe-fish.

European; accidental in American waters (found once in Massachusetts).

13.—FISTULARIIDÆ.

FISTULARIA TABACCARIA Linn.—Tobacco trumpet-fish; unarmed trumpet-fish.

Cape Cod to Florida. (Occasional; specimens obtained at New York.)

14.—GASTEROSTEIDÆ.

APELTES QUADRACUS (Mitch.) Brev.—Four-spined stickle-back.
New Brunswick to Florida.

GASTEROSTEUS ACULEATUS Linn.—Common stickle-back.
Greenland to Newfoundland (at least).

GASTEROSTEUS BLACULEATUS Shaw. (d. s.)—Two-spined stickle-back.
Newfoundland and Labrador.

GASTEROSTEUS NIGER Cuv. and Val. (d. s.)—Black stickle-back.
Newfoundland.

GASTEROSTEUS NOVEBORACENSIS Cuv. and Val. (d. s.)—New York, stickle-back.

New Brunswick to Cape Hatteras.

PYGOSTEUS OCCIDENTALIS (Cuv. and Val.) Brevoort.—Ten-spined stickle-back.

Newfoundland to Cape Hatteras.

15.—SOLEIDÆ.

PLAGUSIA PLAGIUSA (Linn.) Gill. (d. @ s.)—Long sole.
Cape Hatteras to Florida.

ACHIRUS LINEATUS (Linn.) Cuv.—American sole; calico; hog-choker
(*New Jersey*); coverlip (*New Jersey*); spotted sole (*Massachusetts Bay*).
Cape Cod to Florida.

16.—PLEURONECTIDÆ.

EUCHALARODUS PUTNAMI Gill.—Putnam's flat-fish.

Nova Scotia to Cape Cod. (Found only in Salem Harbor, Mass.)

PSEUDOPLEURONECTES AMERICANUS (Walb.) Gill.—Common flounder,
winter-flounder; mud dab (*Massachusetts Bay*); sole (*New York*).

Nova Scotia to Cape Hatteras.

MYZOPSETTA FERRUGINEA (Storer) Gill.—Rusty dab; sand dab (*Maine*).
Nova Scotia to Cape Cod.

LIMANDA ROSTRATA (H. R. Storer) Gill.—American dab.
Labrador.

PLEURONECTES GLABER (Storer) Gill.—Smooth plaice; smooth back.
Massachusetts to Maine.

GLYPTOCEPHALUS ACADIANUS Gill.—Long dab.
Maine.

LOPHOPSSETTA MACULATA (Mitch.) Gill.—Spotted turbot; window-pane (*New Jersey*); sand flounder (*New York*).

Cape Cod to Cape Hatteras.

CITHARICHTHYS MICROSTOMUS Gill.—Whiff.

New Jersey to Cape Hatteras.

HIPPOGLOSSOIDES PLATESSOIDES (Fabr.) Gill.—Arctic dab.

Polar regions (Greenland).

POMATOPSETTA DENTATA (Storer) Gill.—Summer flounder.

Nova Scotia to Cape Hatteras.

CHÆNOPSETTA OCELLARIS (De Kay) Gill.—Common flounder.

Cape Cod to Cape Hatteras.

CHÆNOPSETTA DENTATA (Linn.) Gill.—Southern flounder.

Cape Hatteras to Florida.

CHÆNOPSETTA OBLONGA (Mitch.) Gill.—Four-spotted flounder.

Cape Cod to Cape Hatteras.

HIPPOGLOSSUS AMERICANUS Gill (d. s.)—Halibut.

Newfoundland to Cape Hatteras.

ELINHAEDILUS HIPPOGLOSSOIDES (Walb.) Gill.—Greenland halibut.

Greenland.

17.—MACRURIDÆ.

MACRURUS RUPESTRIS Bloch.—Ingmingoak (*Greenland*).

Greenland.

CORYPHÆNOIDES NORVEGICUS (Gunner) Günth.

Greenland.

18.—GADIDÆ.

BOREOGADUS POLARIS (Sabine) Gill.—Misarkorniak (*Greenland*).

Polar regions.

POLLACHUS CARBOARIUS (Linn.) Bon.—Pollock; coal-fish (*England*).

Greenland to Cape Hatteras.

GADUS MORRHUA Linn.—Common cod fish; sarandlik and sarand-lisksoak (*Greenland*).

Polar regions to Cape Hatteras.

GADUS OJAC Rich. (d. s.)—Greenland cod fish; ojac or ovak (*Greenland*).

Polar regions.

MICROGADUS TOMCODUS (Walb.) Gill.—Tom-cod; frost-fish.

Newfoundland to Cape Hatteras.

MELANOGRAMMUS ÆGLEFINUS (Linn.) Gill.—Haddock.

Newfoundland to Cape Hatteras.

PHYCIS CHUSS (Walb.) Gill.—Codling (*New York*); old English hake; squirrel hake (*Mass.*); ling; chuss (*formerly at New York*); codling (*Newport*); fork-beard (*England*).

Newfoundland to Cape Hatteras.

PHYCIS TENUIS (Mitch.) DeKay.—Codling (*New York*); white hake (*Mass.*); squirrel hake (*Maine*).

Newfoundland to Cape Hatteras.

UROPHYCIS REGIUS (Walb.) Gill.—Spotted codling.

Cape Cod to Cape Hatteras.

MOLVA VUGARIS Flem.—Ling (*Great Britain*); iverksoak (*Greenland*).
Polar regions.

ONOS REINHARDTII (Kroyer) Gill.—Five-bearded rockling.
Greenland.

ONOS ENSIS (Reinhardt) Gill.—Three-bearded rockling.
Greenland.

RHINONEMUS CAUDACUTA (Storer) Gill. (d. s.)—4-bearded rockling.
Nova Scotia to Cape Cod.

CILIATA ARGENTATA (Reinh.) Gill.—Mackerel-midge.
Greenland to Cape Hatteras

BROSMIUS BROSMÆ (Fabr.) White. (d. @ s.)—European cusk; nejpallujak (*Greenland*); torsk or tusk (*Great Britain*).
Polar regions to Cape Cod.

BROSMIUS AMERICANUS Gill. (d. s.)—Cusk (*Mass.*); torsk or tusk (*British provinces*).
Nova Scotia to Cape Cod.

BROSMIUS FLAVESCENS Lesueur. (d. s.)—Cusk.
Banks of Newfoundland.

19.—MERLUCIIDÆ.

MERLUCIUS VULGARIS Flem. (d. @ s.)—European hake; akullia-kitsok (*Greenland*).
Greenland.

MERLUCIUS BILINEARIS (Mitch.) Gill.—American hake; silver hake (*Maine*); whiting (*Mass*); stock-fish.
Nova Scotia to Cape Hatteras.

20.—OPHIIDIIDÆ.

OPHIIDIUM MARGINATUM Mitch.—Little cusk (*New York*).
Cape Cod to Cape Hatteras.

21.—BROTULIDÆ.

BYTHITES FUSCUS Reinhardt.—Amersulak (*Greenland*).
Greenland.

22.—LYCODIDÆ.

GYMNELIS VIRIDIS Reinhardt.—Uuernak (*Greenland*).
Polar regions.

LYCODES VAHLII Reinhardt.—Vahl's lycodes; misarkornak (*Greenland*).
Greenland.

LYCODES RETICULATUS Reinhardt.—Reticulated lycodes; akullia-kitsok (*Greenland*).

Greenland.

LYCODES PERSPICILLUM Kroyer.—Spotted lycodes.

Greenland.

LYCODES SEMINUDUS Reinhardt.—Half-naked lycodes.

Greenland.

LYCODES NEBULOSUS Kroyer.—Cloudy lycodes.

Greenland.

LYCODES MUCOSUS Richardson.—Slimy lycodes.

Greenland.

LYCODES POLARIS (Sabine) Rich.—Arctic lycodes.

Polar regions.

ZOARCES ANGUILLARIS (Peck) Storer.—Eel pout; conger eel (*Massachusetts Bay*); lamper-eel (*Eastport*).

Newfoundland to Cape Hatteras.

23.—CRYPTACANTHIDÆ.

CRYPTACANTHODES MACULATUS Storer.—Ghost fish; wry-mouth.

Nova Scotia to Cape Cod.

CRYPTACANTHODES ESORNATUS Gill.—Ghost-fish; conger-eel (*Me.*)

Nova Scotia to Cape Cod.

24.—STICHLÆIDÆ.

EUMESOGRAMMUS SUBBIFURCATUS (Storer) Gill; Little cusk (*Me.*)

Nova Scotia to Cape Cod.

EUMESOGRAMMUS PRÆCISUS (Kroyer) Gill.

Greenland.

STICHLÆUS PUNCTATUS (Fabr.) Reinh.

Greenland.

LEPTOCLINUS ACULEATUS (Reinh.) Gill.

Greenland.

ANISARCHIUS MEDIUS (Reinh.) Gill.

Greenland.

LUMPENUS FABRICII Reinhardt.

Greenland.

LEPTOBLENNIUS SERPENTINUS (Storer) Gill.

Nova Scotia to Cape Cod.

LEPTOBLENNIUS GRACILIS (Stuvitz) Gill.

Greenland.

CENTROBLENNIUS NUBILUS (Rich.) Gill.

Greenland.

25.—XIPHIODONTIDÆ.

MURENOIDES FASCIATUS (Schneider) Gill.—Banded butter-fish.

Greenland.

MURÆNOIDES MUCRONATUS (Mitch.) Gill. (d. s.)—Common butter-fish.
Nova Scotia to Cape Hatteras.

Varieties. (?)

MURÆNOIDES MACROCEPHALUS (Girard) Gill. (d. s.)
Massachusetts.

MURÆNOIDES INGENS (H. R. Storer) Gill. (d. s.)
Labrador.

ASTERNOPTERYX GUNELLIFORMIS Rüppell. (d. @ g.)
Greenland. (?)

26.—ANARRHIADIDÆ.

ANARRHIAS VOMERINUS (Ag.) Storer. (d. s.)—Wolf-fish; cat-fish
(*New England*); kigutilik (*Greenland*).
Greenland to Cape Hatteras.

ANARRHIAS STEENSTRUPH Gill. (d. s.)—Steenstrup's wolf-fish;
kærrak (*Greenland*).
Greenland.

ANARRHIAS DENTICULATUS Kroyer.—Small-toothed wolf-fish.
Greenland.

27.—BLENNIIDÆ.

BLENNIUS FUCORUM Cuv. and Val. (d. @ s.; d. @ g.)—Sea-weed blenny.
South Carolina.

BLENNIUS GEMINATUS Wood. (d. @ g.)—Blenny.
South Carolina.

HYPLEUROCHILUS PUNCTATUS (Wood) Gill.—Spotted blenny.
Cape Hatteras to Florida.

PHOLIS CAROLINUS Val.—Carolina blenny.
Cape Hatteras to Florida.

HYPSOBLENNIUS HENTZII (Les.) Gill.—Hentz's blenny.
South Carolina.

CHASMODES BOSCIANUS (Lac.) Cuv. and Val.—Bosc's shanny.
New York to Florida.

CHASMODES QUADRIFASCIATUS Val.—Four-banded shanny.
South Carolina.

CHASMODES NOVEMLINEATUS Val.—Nine-lined shanny.
South Carolina.

28.—BATRACHIDÆ.

BATRACHUS TAU Linn.—Toad-fish; oyster-fish (*New Jersey and Florida*);
sapo (*Cuba*).
Nova Scotia to Florida.

29.—URANOSCOPIDÆ.

ASTROSCOPUS ANOPLUS (Cuv. and Val.) Brevoort.—Naked star-gazer.
New York to Florida.

30.—CYCLOPTERIDÆ.

CYCLOPTERUS LUMPUS Linn.—Common lump-fish; lump-sucker, sea-owl, paddle (*Great Britain*); Licorne de mer (*France*).

Polar regions to Cape Hatteras.

EUMICROTREMUS SPINOSUS (Fabr.) Gill.—Spinous lump-fish.

Greenland to Bay of Fundy.

31.—LIPARIDIDÆ.

LIPARIS LINEATA (Lapechun) Kroyer.—Lineated liparis, or sea-snail.

Polar regions to Cape Cod.

LIPARIS ARCTICA Gill.—Arctic liparis.

Greenland (Port Foulke).

LIPARIS FABRICII Kroyer.—Fabricius' liparis.

Greenland.

LIPARIS MONTAGUI Don.—Montagu's liparis, or sea-snail.

Polar regions to Cape Cod.

ACTINOCHIR MAJOR (Walb.) Gill.—Large liparis.

Greenland.

CAREPROCTUS REINHARDTI Kroyer.—Reinhardt's liparis.

Greenland.

32.—GOBIIDÆ.

GOBIOSOMA ALEPIDOTA (Lac.) Girard.—Scaleless goby.

Cape Cod to Florida.

GOBIUS CAROLINENSIS Gill.—Black goby.

Cape Hatteras to Florida.

DORMITATOR LINEATUS Gill.—Striped sleeper.

Cape Hatteras to Florida.

33.—TRIGLIDÆ.

DACTYLOPTERUS VOLITANS (Linn.) Lac.—Flying robin; murcielago (*Cuba*); civetta de mare (*Naples*); bat-fish (*Bermudas*).

Newfoundland to Florida.

PRIONOTUS EVOLANS (Linn.) Gill.—Lined Sea-robin; flying fish (*New Jersey*).

Cape Cod to Florida.

PRIONOTUS PUNCTATUS (Bloch.) Cuv.—Spotted sea-robin; rubio volador (*Cuba*).

Florida.

PRIONOTUS CAROLINUS (Linn.) Cuv. and Val.—Web-fingered sea-robin; Carolina robin.

Cape Cod to Florida.

PRIONOTUS PILATUS Storer. (d. s.)—Small-scaled sea-robin.

Massachusetts.

TRIGLA CUCULUS Linn. (d. @ s.)—European gurnard.

European; accidental at New York.

34.—AGONIDÆ.

ASPIDOPHOROIDES MONOPTERYGIUS (Bloch) Storer.

Polar regions to Cape Cod.

AGONUS CATAPHRACTUS (Linn.) Bl. Schn.—Sea-poacher.

Polar regions (Greenland.)

ARCHAGONUS DECAGONUS (Bl. Schn.) Gill.

Greenland.

35.—COTTIDÆ.

COTTUS OCTODECIMSPINOSUS Mitchill.—Slender sculpin; grubby.

Nova Scotia to Cape Hatteras.

COTTUS ÆNEUS Mitchell (d. s.)—Little sculpin.

Cape Cod to Cape Hatteras.

COTTUS GROENLANDICUS Cuv. and Val. (d. s.)—Northern sculpin.

Polar regions to Cape Hatteras.

Varieties. (?)

COTTUS POROSUS Cuv. and Val. (d. s.)

Baffin's Bay.

COTTUS OCELLATUS H. R. Storer. (d. s.)

Greenland to Newfoundland.

COTTUS LABRADORICUS H. R. Storer. (d. s.)

Greenland to Newfoundland.

COTTUS GLACIALIS Richardson. (d. s.)

Greenland.

COTTUS PACHYPUS Günther. (d. s.)

Polar regions (Greenland).

COTTUS MITCHELLI Cuv. and Val. (d. s.)

Newfoundland to Cape Hatteras.

COTTUS SCORPIOIDES Fabricius. (d. @ g.)

Greenland.

GYMNACANTHUS TRICUSPIS (Reinhardt) Gill. (d. s.)

Polar regions.

GYMNACANTHUS PATRIS (H. R. Storer) Gill. (d. s.)

Labrador to Bay of Fundy.

ONCOCOTTUS QUADRICORNIS (Linn.) Gill.

Polar regions.

ICELUS BICORNIS Reinhardt. (d. @ g.)

Greenland.

ICELUS UNCINATUS Reinhardt. (d. @ g.)

Greenland.

COTTUS POLARIS Sabine. (d. @ g.)

Polar regions.

TRIGLOPS PINGELII Reinhardt.

Greenland.

TRIGLOPS PLEUROSCTICTUS Cope.

Greenland.

36.—HEMITRIPTERIDÆ.

HEMITRIPTERUS ACADIANUS (Walbaum) Storer.—Sea-raven; yellow sculpin.

Newfoundland to Cape Hatteras.

37.—SCORPÆNIDÆ.

SCORPÆNA PORCUS Linn. (d. @ s.)—Pig-foot.

European; (accidental at New York.)

SCORPÆNA PLUMIERI Bl. Schn. (d. @ s.) Plumer's pig-foot.

West Indian; occasional on northern coast.

SEBASTES NORVEGICUS (Linn.) Cuv. (d. @ s.)—Norway haddock; hemdurgan.

Polar regions to Cape Cod.

SEBASTES VENTRISPINIS Kroyer (d. s.)—Red-fish; breem (*Ma'ne*); rose-fish; snapper (*Massachusetts Bay*, Storer); red sea perch (*New York*); red perch (*Eastport*).

Polar regions to Cape Cod.

SEBASTES FASCIATUS Storer. (d. s. and d. @ g.) Banded red fish.

Accidental to Massachusetts. (?)

38.—LABRIDÆ.

TAUTOGA ONITIS (Linn.) Gthr.—Black-fish; tautog.

Bay of Fundy to South Carolina; New York.

TAUTOGLABRUS ADSPERSUS (Walbaum) Gill.—Burgall or bergall (*New York*); cunner or conner; chogset (*N. E.*); blue-fish or blue perch.

Newfoundland to Cape Hatteras.

XIRICHTHYS LINEATUS (Gmel.) Cuv. and Val.—Razor-fish.

West Indian, (occasional on Southern coast ?)

CICEROJULIS GRANDISQUAMIS Gill.

North Carolina.

38a.—POMACENTRIDÆ.

GLYPHODON SAXATIS (Linn.) Cuv. and Val.—Cow-pilot (*Berm.*).

West Indian (accidental on northern coast; found at Newport.)

39.—POLYNEMIDÆ.

TRICHIDION PLUMIERI (Lac.) Gill.—Thread-fish.

West Indies; occasional northward. (?)

TRICHIDION OCTOPILIS Gill.—Eight-threaded thread-fish.

New York (accidental).

40.—TEUTHIIDIDÆ.

ACANTHURUS CHERURGUS Bloch. and Schneider.—Surgeon-fish; barbero (*Cuba*); doctor-fish (*Bermudas*).

West Indies; occasional northward.

ACANTHURUS NIGRICANS Linn.—Black surgeon

West Indies; occasional northward.

41.—CHAETODONTIDÆ.

SAROTHIRODUS MACULOCINCTUS Gill.

Cape Cod to Cape Hatteras.

HOLACANTHUS CILIARIS Lac.—Isabelita (*Cuba*); angel-fish (*Berm.*)

West Indies; occasional northwards.

42.—XIPHIIDÆ.

XIPHIAS GLADIUS Linn.—Common sword fish.

Nova Scotia to West Indies.

TETRAPTURUS ALBIDUS Poey.—Flee Bill-fish; The Spear-fish.

Cape Cod to West Indies.

HISTIOPHORUS GLADIUS (Brouss.) Gthr.—The Sail-fish.

Cape Cod to West Indies.

43.—TRICHIURIDÆ.

TRICHIURUS LEPTURUS Linn.—Silvery hair-tail.

Cape Cod to Florida.

44.—SCOMBRIDÆ.

SCOMBER SCOMBRUS Linn. (d. @ s.)—Mackerel; wawwhumekesuog (*Narragansett Indians*, Trumbull); caballa (*Cuba*).

Greenland to Cape Hatteras.

SCOMBER COLIAS Linnaeus. (d. @ s.)—Chub-mackerel.

Nova Scotia to Cape Hatteras.

SARDA PELAMYS (Linn.) Cuv.—Bonito; skip-jack (*Boston market*).

Cape Cod to Florida.

ORCYNUS SECUNDI-DORSALIS (Storer) Gill. (d. s.)—Horse-mackerel (*Massachusetts*, &c.); albicore (*Rhode Island*); American tunny.

Newfoundland to Florida.

ORCYNUS ALLITERATUS (Raf.) Gill.—Little tunny; albicore; alleterato (*Naples*); mackerel (*Berm.*); pelagic, occasional on coast (found in large numbers at *Wood's Hole, Massachusetts, August, 1871*).

CYBIUM MACULATUM (Mitch.) Cuv.—Spanish mackerel; spotted mackerel; bay mackerel. (rare in *Massachusetts Bay*.)

Cape Cod to Florida.

CYBIUM REGALE (Bloch) Cuv.—Cero; black-spotted Spanish mackerel; king fish.

Cape Cod to Florida.

45.—CARANGIDÆ.

VOMER SETIPINNIS (Mitch.) Ayres.—Horse-fish; jorobado (*Cuba*).

Maine to Florida.

SELENE ARGENTEA Lac.—Silver moon-fish; jorobado (*Cuba*).

Cape Cod to Florida.

ARGYRIOSUS VOMER Lac.—Jorobado (*Cuba*).

Cape Cod to Florida.

ARGYRIOSUS CAPILLARIS (Mitch.) DeKay. (d. s.)

Cape Cod to Florida.

DECAPICTERUS PUNCTATUS (Mitch.) Gill.—Dotted sead; round robin (*Bermudas*).

Cape Cod to Florida.

DECAPICTERUS MACARELLUS (Cuv. and Val.) Gill.—Mackerel sead.Cape Cod to Florida. (*Wood's Hole, Massachusetts, 1873*).**TRACHUROPS CRIMENOPHTHALMUS** (Bloch) Gill.—Big-eyed sead; chicharro (*Cuba*); goggler; goggle-eyed Jack (*Bermudas*).

Cape Cod to Florida.

PARATRACTUS PISQUETOS (Cuv. et Val.) Gill.—Yellow crevalle; cojinua (*Cuba*). Jack, Buffalo Jack (*Bermuda*).

Cape Cod to Florida.

CARANGUS HIPPOS (Linn.) Gill.—Horse-crevalle; jiguagua (*Cuba*).

Cape Cod to Florida.

CARANGUS FALLAX (Cuv. et Val.) Girard.—Jurel (*Cuba*).

South Carolina.

CARANGUS CHRYSOS (Mitch.) Gill.—Yellow-mackerel (*New York*).

Cape Cod to Florida.

CARANGOPS FALCATUS (Holbr.) Gill.

South Carolina.

BLEPHARICHTHYS CRINITUS (Akerly) Gill.—Thread-fish.

Cape Cod to Florida.

CHLOROSCOMBERUS CHRYSURUS (Linn.) Gill.—Casabe (*Cuba*).

Cape Cod to Florida.

TRACHYNOTUS OVATUS (Linn.) Gthr.—Short pompano; palorrieta (*Cuba*).

Cape Cod to Florida.

TRACHYNOTUS GLAUCUS Cuv. and Val.—Glaucous pompano.

South Carolina to Florida.

TRACHYNOTUS CAROLINUS (Linn.) Gill.—Pompano (*Southern Coast*); cavalle or crevalle (*South Carolina*); pompynose (*New Orleans*).

Cape Cod to Florida.

NAUCRATES DUCTOR (Linn.) Raf.—Pilot-fish; pilot, romero (*Cuba*).

Pelagic; occasional on coast.

ZONICHTHYS FASCIATUS (Bloch) Sw.

South Carolina.

HALATRACTUS ZONATUS (Mitch.) Gill.—Rudder-fish; bonito (*Berm.*)

Cape Cod to Florida.

HALATRACTUS CAROLINENSIS (Holbr.) Gill.

South Carolina.

46.—CORYPHAENIDÆ.

CORYPHÆNA SUEURI Cuv. and Val.—Lesueur's dolphin.

Pelagic; occasional on coast.

CORYPHÆNA PUNCTULATA (Cuv. and Val.) Gthr.—Small-spotted dolphin.

Pelagic; occasional on coast

47.—STROMATEIDÆ.

PALINURICHTHYS PERCIFORMIS (Mitch.) Gill.—Black rudder-fish.

Maine to Cape Hatteras.

PORONOTUS TRIACANTHUS (Peck) Gill.—Harvest-fish (*New Jersey*),
butter-fish (*Massachusetts*); dollar fish (*Maine*).

Maine to Cape Hatteras.

PEPRILUS GARDENII (Bl. Schn.) Gill.

New York to Florida.

48.—BRAMIDÆ.

PTERACLIS CAROLINUS Val.

South Carolina.

49.—LAMPRIDIDÆ.

LAMPRIS GUTTATA Retz.—Opah.

Occasional off Newfoundland.

50.—ZENIDÆ.

ZENOPSIS OCELLATUS (Storer) Gill. (d. s.)—Ocellated dory.

Massachusetts. (Accidental? Identical with *Z. conchifer*?)

51.—MULLIDÆ.

MULLUS, sp. incog.

West Indian (?); occasional on coast (found at New York).

52.—BERYCIDÆ.

HOLOCENTRUM SOGHIO Bloch—Matajuelo (*Cuba*); squirrel (*Berm.*)

West Indian; accidental on northern coast (found at Newport,
Rhode Island).

53.—SCIÆNIDÆ.

CYNOSCION CAROLINENSIS (Cuv. and Val.) Gill.—Salmon-trout; spotted
sea-trout (*south coast*); spotted silver-sides (*Scott*).

Cape Hatteras to Florida.

CYNOSCION REGALIS (Bloch) Gill.—Squeteague or squit (*New England*);
shecutts or checutts (*Mohegan Indians*); chickwick (*Connecticut*);
weak-fish (*New York*); blue-fish (*Beesley's Point, New Jersey*); trout
(*southern coast*); salt-water trout; gray trout (*southern coast*).

Cape Cod to Florida.

CYNOSCION THALASSINUS (Holbr.) Gill.

Cape Hatteras to Florida.

CYNOSCION NOTHUS (Holbr.) Gill.

Cape Hatteras to Florida.

POGONIAS CHROMIS Lacep.—Drum.

Cape Cod to Florida.

LIOSTOMUS XANTHURUS Lacep.—Yellow-tail.

Cape Cod to Florida.

LIOSTOMUS OBLIQUUS (Mitch.) DeKay.—Lafayette (*New York*); goody (*Cape May*); chub (*Norfolk*); roach (*Northampton County, Virginia*).

Cape Cod to Florida.

STELLIFERUS LANCEOLATUS (Holbr.) Gill.

Cape Hatteras to Florida.

BAIRDIELLA PUNCTATA (Linn.) Gill.—Silver perch (*New Jersey*).

Cape Cod to Florida.

SCLENOPS OCELLATUS (Linn.) Gill.—Bass; red bass; sea-bass; spotted bass (*South Carolina*); red-fish (*Gulf of Mexico*).

Cape Cod to Florida.

MENTICIRRUS ALBURNUS (Linn.) Gill.—Carolina whiting.

Cape Hatteras to Florida.

MENTICIRRUS NEBULOSUS (Mitch.) Gill.—King fish; whiting; hake (*New Jersey*); barb (*New Jersey*).

Cape Cod to Florida.

MENTICIRRUS LITTORALIS (Holbr.) Gill.—Shore-whiting.

Cape Hatteras to Florida.

MICROPOGON CUDRATUS (Linn.) Cuv. and Val.—Croaker; verrugato (*Cuba*).

Cape Cod to Florida.

LARIMUS FASCIATUS Holbrook.

Cape Hatteras to Florida.

54.—GERRIDÆ.

EUCINOSTOMUS ARGENTEUS Baird and Girard. (d. s., d. @ g.)

New Jersey southwards.

55.—PIMELEPTERIDÆ.

PIMELEPTERUS BOSCH Lac.—Chopa-banca (*Cuba*); bream (*Berm.*)

Cape Cod to Florida.

56.—SPARIDÆ.

LAGODON RHOMBODES (Linn.) Holbrook.—Sargo (*Cuba*).

Cape Cod to Florida.

ARCHOSARGUS PROBATOCEPHALUS (Walb.) Gill.—Sheep's-head.

Cape Cod to Florida.

STENOTOMUS ARGYROPS (Linn.) Gill.—Scup (*Vineyard Sound*); scup-pang; porgy (*New York*); bream (*Rhode Island, formerly*); fan-maid (*East Shore of Virginia*).

Cape Cod to Florida.

SPARUS ACULEATUS (Cuv. and Val.) Gill. (d. s., d. @ g.)—Gilt-head.

Cape Hatteras to Florida.

57.—PRISTIPOMATIDÆ.

HÆMULON ARCUATUM Cuv. and Val.—Grunts.

South Atlantic coast of United States.

HÆMULON FORMOSUM (Linn.) Cuv.

South Atlantic coast of United States.

HÆMULON CHRYSOPTERON (Linn.) Cuv.

South Atlantic coast of United States.

HÆMULON QUADRILINEATUM (Cuv. and Val).—Striped grunt (*Berm.*)

South Atlantic coast of United States.

ORTHOPRISTIS FULVOMACULATUS (Mitch.) Gill.

South Atlantic coast of United States.

ANISOTREMUS VIRGINICUS (Linn.) Gill.

South Atlantic coast of United States.

LUTJANUS CAXIS (Bl. Schn.) Gill.—Yelting, glass-eyed snapper (*Berm.*)

South Atlantic coast of United States.

58.—SERRANIDÆ Gill.

PROMICROPTERUS MACULATUS (Holbr.) Gill.—Soap fish.

Cape Hatteras to Florida.

PROMICROPTERUS DECORATUS Gill. (d. @ s.)

Newport, R. I. (Accidental.)

HYPORTHODUS FLAVICAUDA Gill.

Newport, R. I. (Accidental.)

EPINEPHELUS MORIO (Cuv.) Gill.—Red grouper (*New York?*);
cherna de vovero (*Cuba*).

Cape Cod to Florida.

EPINEPHELUS NIGRITUS (Holbr.) Gill. (d. @ g.)

Cape Hatteras to Florida.

EPINEPHELUS OXYPTERUS (DeKay) Gill. (d. s.; d. @ g.)

New York. (Accidental). (?)

TRISOTROPIS ACUTIROSTRIS (Cuv. and Val.) Gill.

Cape Hatteras to Florida.

PROMICROPS GUASA (Poey) Gill.—Guasa, (*Cuba*.)

Florida.

CENTROPRISTIS ATRARIUS (Linn.) Barn.—Black sea-bass; sea-bass
(*New York*); black perch (*Mass.*); black-bass; black-fish (*New Jersey*);
blue-fish (*Newport*); black-harry; hammahills (*New York*, DeKay);
black-will (*Eastern Shore of Virginia*).

Cape Cod to Florida.

TRILOBURUS TRIFURCUS (Linn.) Gill.

Cape Hatteras to Florida.

DIPLECTRUM FASCICULARE (Cuv. and Val.) Holbrook—Serrano (*Cuba*).

Cape Hatteras to Florida.

DULES AURIGA Cuv. and Val.—Charioteer; coachman (DeKay.)

Cape Cod to Florida.

59.—LABRACIDÆ.

ROCCUS LINEATUS (Bl. Schn.) Gill.—Striped bass (*Eastern States*); rock-fish (*Pennsylvania*, etc.); missuckeke kequoock (*Narragansett Indians*).
Nova Scotia to Florida.

MORONE AMERICANA (Gmelin) Gill.—White perch.
Nova Scotia to Florida.

60.—EPHIPPIIDÆ.

PAREPHIPPUS QUADRATUS (Gun.) Gill.—Moon-fish.
Cape Cod to Florida.

PAREPHIPPUS FABER (Cuv.) Gill.—Moon-fish; angel-fish (*South Carolina*); 3-banded sheep-head; 3 tailed porgy.
Cape Cod to Florida.

61.—LOBOTIDÆ.

LOBOTES SURINAMENSIS Cuv.—Flasher (*New York market*).
Cape Cod to Florida.

62.—POMATOMIDÆ.

POMATOMUS SALTATRIX (Linn.) Gill.—Blue fish (*New York, and New England except Rhode Island*); horse-mackerel (*Newport, and Beasley's Point, N. J.*); skip-jack (*North Carolina*); green fish (*Virginia, DeKay*); tailor (*Maryland and Virginia*); white-fish and snap-mackerel (young).

63.—ELACATIDÆ.

ELACATE CANADUS (Linn.) Gill.—Crab-eater.
Cape Cod to West Indies.

64.—CHILODIPTERIDÆ.

APOGONICHTHYS AMERICANUS Castelnau.
West Indian; occasional northwards (found at Newport, R. I.)

65.—PRIACANTHIDÆ.

PRIACANTHUS MACROPHthalmus Cuv. (d. s.)—Common big-eye.
West Indian; occasional northwards.

PSEUDOPRIACANTHUS ALTUS (Gill.) Bleeker.—Short big-eye.
Cape Cod to Cape Hatteras.

66.—AMMODYTIDÆ.

AMMODYTES AMERICANUS DeKay.—Sand lance; sand-eel (*N. Eng.*)
Newfoundland to Cape Hatteras.

AMMODYTES DUBIUS Reinhardt.
Polar regions to Cape Cod.

ARGYROTÆNIA VITTATA (DeKay) Gill. (d. s.; d. @ g.)
New York. (?)

67.—ECHENEIDIDÆ.

LEPTECHENEIS NAUCRATES (Linn.) Gill.—Sucker-fish.

Coast generally.

LEPTECHENEIS NAUCRATEOIDES (Zuiew) Gill. (d. s.)

Coast generally.

RHOMBOCHIRUS OSTEOCHIR (Cuv.) Gill.

West Indian; occasional on northern coast (found at New Bedford, Massachusetts.)

REMOROPSIS BRACHYPTERA (Lowe) Gill.

Occasional on northern coast (found at Holme's Hole, Massachusetts.)

ECHENEIS REMORA Linn.—Sucker; pega (*Cuba*).

Coast generally.

68.—SPHYRENIDÆ.

SPHYRENA BOREALIS DeKay.—Northern barracuda; sennet (*Berm.*)

Cape Cod to Florida.

69.—MUGILIDÆ.

MUGIL ALBULA Linn.—Mullet.

Cape Cod to Florida.

MUGIL LINEATUS Mitchill.—Striped mullet.

Cape Cod to Florida.

MUGIL PETROSUS Val.

Cape Hatteras to Florida.

MUGIL PLUMIERI Val.

Cape Hatteras to Florida.

70.—ATHERINIDÆ.

CHIROSTOMA NOTATA (Mitch.) Gill.—Silver-sides; friar (*New England*).

Maine to Florida.

CHIROSTOMA MENIDIA (Linn.) Gill.

Cape Hatteras to Florida.

ATHERINA CAROLINA Val.

Cape Hatteras to Florida.

71.—BELONIDÆ.

BELONE LONGIROSTRIS (Mitch.) Gill.—Silver-gar; bill-fish.

Cape Cod to Florida.

72.—SCOMBERESOCIDÆ.

EXOCÆTUS EXILIENS Gmel.—Flying-fish.

Cape Cod to Florida.

EXOCÆTUS NOVEBORACENSIS Mitch.

Cape Cod to Florida.

EXOCETUS MELANURUS Val.

Cape Cod to Florida.

HALOCYPSELUS EVOLANS (Linn.) Gill.

Cape Cod to Florida.

CYPSELURUS COMATUS (Mitch.) Weinland. (d. s., d. @ g.)

Cape Cod to Florida.

CYPSELURUS FURCATUS (Mitch.) Weinland. (d. s., d. @ g.)

Cape Cod to Florida.

EULEPTORHAMPHUS LONGIROSTRIS (Cuv. and Val.) Gill.

Cape Cod to Florida.

HEMIRHAMPHUS UNIFASCIATUS Ranzani.

Cape Cod to Florida.

SCOMBERESOX SCUTELLATUS Lesueur.—Skipper; saury; skip jack.

Nova Scotia to Florida.

73.—CYPRINODONTIDÆ

CYPRINODON VARIEGATUS Lac.

Cape Cod to Florida.

CYPRINODON PARVUS Baird and Girard (d. @ g.)

Cape Cod to Cape Hatteras.

MICRISTIUS ZONATUS (Mitch.) Gill.

Cape Cod to Florida.

MICRISTIUS CINGULATUS (Cuv. and Val.) Gill (d. s.)

Cape Cod to Florida.

MICRISTIUS CHRYSOTUS (Gthr.) Gill (d. s.)

Cape Hatteras to Florida.

FUNDULUS HETEROCLITUS (Linn.) Gill.

Cape Cod to Florida.

FUNDULUS PISCICENTUS (Mitch.) Val.—Killi fish; mummichog.

Maine to Florida.

FUNDULUS MULTIFASCIATUS (Lesueur) Val.

Cape Cod to Florida.

FUNDULUS NIGROFASCIATUS (Lesueur) Val.

Cape Cod to Florida.

HYDRARGYRA MAJALIS (Walb.) Val.

Cape Cod to Cape Hatteras.

HYDRARGYRA SWAMPINA Lac. (d. s.)

Cape Hatteras to Florida.

74.—STOMIATIDÆ.

MALACOSTEUS NIGER Ayres.

Pelagic.

STOMIAS FEROX Reinhardt.

Greenland.

75.—SCOPELIDÆ.

SCOPELUS GLACIALIS Reinhardt.

Greenland.

MAUROLICUS BOREALIS (Nilsson) Gthr (d. s.)

Massachusetts.

76.—SYNODONTIDÆ.

TRACHINOCEPHALUS MYOPS (Bl. Sch.) Gill.

Cape Hatteras to Florida.

SYNODUS FÆTENS (Linn.) Gill.

Cape Cod to Florida.

77.—MICROSTOMIDÆ.

MALLOTUS VILLOSUS (Müller) Cuv.—Capelin.

Polar regions to Nova Scotia.

OSMERUS MORDAX (Mitch.) Gill.—Smelt.

Nova Scotia to Cape Hatteras.

MICROSTOMA GRÆNLANDICA Reinhardt.

Greenland.

78.—SALMONIDÆ.

SALMO SALAR (Linn.) Günther.—Salmon; mishquammanquoock (*Nar-ragansett Indians*).

Polar regions to Cape Cod.

SALMO IMMACULATUS H. R. Storer. (d. s.) Sea-trout.

Labrador to Nova Scotia.

79.—PARALEPIDIDÆ.

PARALEPIS BOREALIS Reinhardt.

Greenland.

80.—ALBULIDÆ.

ALBULA CONORHYNCHUS Bloch and Schneider.—Lady-fish.

Cape Cod to Florida.

81.—ELOPIDÆ.

ELOPS SAURUS Linn.—Big-eyed herring; matajuelo blanco and real (*Cuba*).

Cape Cod to Florida.

MEGALOPS THIRISOIDES (Bl. Sch.) Günther.—Jew-fish; tarpum (*Berm.*)

Cape Cod to Florida.

82.—DUSSUMIERIDÆ.

ETRUMEUS TERES (DeKay) Brevoort.—Round herring.

Cape Cod to Cape Hatteras.

83.—CLUPEIDÆ.

BREVOORTIA MENHADEN (Mitch.) Gill.—Menhaden (*Vineyard Sound*; *munhawhatteaug* (*Narragansett Indians*); *pogy*, *poghaden* (*east coast of New England*); *moss bunker* (*New York*); *panhaden*, *panhagen* (*New England*); *hard-head*, *bony-fish* (*Massachusetts Bay*); *skippaug* or *bunker* (*east end of Long Island*); *bony fish* (*Saybrook*); *white-fish* (*Saybrook to Milford, Connecticut*); *fat-back* and *yellow-tail* (*coast of North Carolina*); *bug-fish* (*Carolina*).

Cape Cod to Cape Hatteras.

ALOSA SAPIDISSIMA (Wilson) Storer.—Shad.

Newfoundland to Florida.

OPISTHONEMA THRISSA Gill.—Thread-herring; menhaden (*Portland*); *shad-herring* (*New York*).

Newfoundland to Florida.

POMOLOBUS PSEUDOHARENGUS (Wilson) Gill.—Herring (*Southern States*); *alewife* (*New England*); *gaspereau* (*British provinces*); *spring-herring* (*New England*); *aumnuog* (*Narragansett Indians*); *kyack*, *blue-back*, *alewife*, *sawbelly*, *cat-thresher* (*Portland, Me.*)

Newfoundland to Florida.

POMOLOBUS MEDIOCRIS (Mitch.) Gill.—Tailor herring (*Potomac*); *fall-shad*.

Newfoundland to Florida.

CLUPEA HARENGUS Linn.—English herring.

Polar regions to Cape Cod.

84.—DOROSOMIDÆ.

DOROSOMA CEPEDIANUM (Lac.) Gill.—Toothed herring.

Cape Cod to Cape Hatteras.

85.—ENGRAULIDÆ.

ENGRAULIS VITTATUS (Mitch.) Bd. and Girard.—Anchovy.

Cape Cod to Cape Hatteras.

ENGRAULIS BROWNII (Gmelin) Val.—Anchovy.

Cape Cod to Florida (New York, Val).

86.—SILURIDÆ.

ELURICHTHYS MARINUS (Mitch.) Baird and Girard.—Fork-tailed cat-fish.

Cape Cod to Florida.

ARIOPSIS MILBERTI (Val.) Gill.—Sea cat-fish.

Cape Cod to Florida.

87.—CONGRIDÆ.

CONGER OCEANICA (Mitch.) Gill.—Conger-eel.

Newfoundland to West Indies.

88.—ANGUILLIDÆ.

ANGUILLA BOSTONIENSIS (Les.) DeKay.—Common eel.

Newfoundland to Cape Hatteras.

89.—SACCOPIIARYNGIDÆ.

SACCOPIIARYNX FLAGELLUM Mitch.—Galper.

Pelagic, in deep seas, (lat. 52° N., long. 30° W.—Mitchill.)

90.—ACIPENSERIDÆ.

ACIPENSER OXYRHYNCHUS Mitch. (d. s.)—Sharp-nosed sturgeon.
Cape Cod to Florida.

ACIPENSER BREVIROSTRIS Lesueur.—Short-nosed sturgeon.
Cape Cod to Florida.

91.—CEPHALOPTERIDÆ.

CERATOPTERA VAMPIRUS (Mitch.) Gill.—Devil-fish; manta (*Cuba*).
Cape Cod to Florida.

92.—MYLIOBATIDÆ.

AETOBATIS NARITARI Müll. and Henle.—Bishop-ray; obispo (*Cuba*).
Norfolk, Virginia, to Florida.

RHINOPTERA QUADRILOBA (Les.) Cuv.—Cow-nosed ray.
Cape Cod to Florida.

MYLIOBATIS FREMENVILLEI (Les.) Storer.—Sharp-nosed ray.
Cape Cod to Florida.

93.—TRYGONIDÆ.

PTEROPLATEA MACLURA Müll. and Henle.—Butterfly-ray.
Cape Cod to Florida.

TRYGON CENTRURA (Mitch.) Gill.—Sting-ray; whip-ray; stingaree.
Cape Cod to Florida.

94.—TORPEDINIDÆ.

TORPEDO OCCIDENTALIS Storer.—Torpedo; cramp-fish; numb-fish.
Cape Cod to Florida.

95.—RAIADÆ.

RAIA EGLANTERIA Lac. Lesueur.—Clear-nosed ray.
Nova Scotia to Florida.

RAIA ERINACEUS Mitch. (d. s.)—Summer-skate.
Cape Cod to Florida.

RAIA LÆVIS Mitch.—Sharp-nosed skate; winter-skate.
Nova Scotia to Florida.

96.—PRISTIDÆ.

PRISTIS ANTIQUORUM (Linn.) Lath. (d. @ s.)—Saw fish.
Cape Cod to Florida.

97.—SQUATINIDÆ.

SQUATINA DUMERIL Lesueur. (d. s.)—Angel fish; shark-ray; monk, or monkey fish, Kingston, shark ray, Fiddle fish (*Europe*); little bull-head shark (*New York*).

Cape Cod to Florida.

98.—CETORHINIDÆ.

CETORHINUS MAXIMUS Blainv. (d. s.)—Basking shark; sun-fish; sail-fish; hoe-mother (*Great Britain*).

Newfoundland to Cape Hatteras.

99.—LAMNIDÆ.

ISUROPUS DEKAYI Gill. (d. s.)—Mackerel-shark; dentuda (*Cuba*).

Newfoundland to Florida.

CARCHARODON ATWOODI (Storer) Gill. (d. s.)—Atwood's shark; man-eater (*Maine*).

Newfoundland to Florida.

100.—ODONTASPIDIDÆ.

EUGOMPHODUS LITTORALIS Gill.—Sand-shark; shovel-nose (*Maine*).

Maine to Cape Hatteras.

101.—ALOPECHIDÆ.

ALOPIAS VULPES Linn. Bon.—Fox shark; thresher; swingle-tail; sea-fox; sea ape; pez zorro (*Cuba*); pesce pavone (*Naples*).

Cape Cod to Florida.

102.—SPHYRNIDÆ.

SPHYRNA ZYGOMA Linn. Müll. and Henle.—Hammer head shark; cornuda (*Cuba*); magnosa (*Naples*).

Cape Cod to Florida.

RENICEPS TIBURO (Linn.) Gill.—Shovel-head shark.

Cape Cod to Florida.

103.—GALEORHINIDÆ.

EULAMIA MILBERTII (Müll. and Henle) Gill.—Blue shark.

Cape Cod to Florida.

EULAMIA OBSCURUS (Lesueur) Gill.—Dusky shark.

Cape Cod to Florida.

APRIONODON PUNCTATUS (Mitch.) Gill.

Cape Cod to Cape Hatteras.

SCOLIODON TERRÆ-NOVÆ (Rich.) Gill.

Newfoundland to Cape Hatteras.

GALEOCERDO TIGRINUS Müll. and Henle.—Tiger-shark; alceirin (*Cuba*).

Cape Cod to Florida.

MUSTELUS CANIS Mich. DeKay. (d. s.)—Smooth hound (*Great Britain*); smooth dog fish; blue dog (*Massachusetts*); boca dulce (*Cuba*).

Cape Cod to Cape Hatteras.

104.—SPINACIDÆ.

SQUALUS AMERICANUS (Storer) Gill. (d. s.)—Picked dog-fish, dog-fish; bone-dog; skittle-dog; hoe (*Great Britian*).

Newfoundland to Cape Hatteras.

CENTROSCYLLIUM FABRICII (Reinh.) Müll. and Henle.

Greenland.

105.—SCYMNIDÆ.

SOMNIOSUS MICROCEPHALUS (Bloch) Gill. (d. @ s.)—Sleeper-shark; nurse (*Portland*).

Polar regions to Cape Cod.

106.—PETROMYZONTIDÆ.

PETROMYZON AMERICANUS Lesueur. (d. s.)—Lamprey; lamper eel.
Cape Cod to Cape Hatteras.

AMMOCOETES NIGRICANS (Lesueur) Gill. (d. s.)—Black lamprey.
Cape Cod to Cape Hatteras.

AMMOCOETES APPENDIX (DeKay) Gill. (d. s.)
Cape Cod to Cape Hatteras.

AMMOCOETES BICOLOR Lesueur. (d. s.)
Cape Cod to Cape Hatteras.

107.—MYXINIDÆ.

MYXINE GLUTINOSA Linn. (d. @ s.)—Hag-fish; sucker; slime-fish.
Polar regions to Cape Cod.

108.—BRANCHIOSTOMIDÆ.

BRANCHIOSTOMA CARIBÆUM Sundevall. (d. s.)—Lancelet.
Cape Hatteras to Florida.

3.—BIBLIOGRAPHY OF EAST COAST FISHES.

I.

The following list embraces almost all the articles purporting to enumerate all the salt-water fishes found at or recorded as inhabiting a given locality, from Greenland to Florida, or (e. g. Holbrook's and Putnam's articles,) commenced with such intention; in addition, the titles of M. Felipe Poey's catalogues are given, as they are indispensable to the American ichthyologist. These articles have been arranged under the names of their authors in alphabetical order. They represent the following geographical areas, commencing with (1) the general works, and then (2) the northern areas.

GENERAL. Gill, Storer (D. H.).—DeKay's "Zoology of New York" may be added as it contains brief notices of the "extra-limital species."

NORTHERN AMERICA. Richardson.

GREENLAND. Fabricius, Reinhardt.

GULF OF ST. LAWRENCE AND BAY OF FUNDY. Fortin, Gill.

LABRADOR. Storer (H. R.)

NOVA SCOTIA. Knight, Perley, Storer (H. R.)

MAINE. Holmes.

MASSACHUSETTS. Lyman, Putnam, Smith, Storer (D. H.)

CONNECTICUT. Linsley.

NEW YORK. Ayres, DeKay, Mitchill.

NEW JERSEY. Abbott, Baird.

SOUTH CAROLINA. Holbrook, Storer.

GEORGIA. Holbrook.

In addition to these, the reports and journals of arctic travelers, and histories and geographies of countries and states may be referred to; but as the lists contained in such works are generally compilations by unscientific persons, they require to be consulted with great caution. Special mention need only be made of Bonnycastle's "Newfoundland in 1842," Belknap's "History of New Hampshire" (1793), Mather's "Geography of the State of New York" (1847), and Russell's "Harper's New-York State Class-Book" (1847).

ABBOTT (Charles Conrad). Catalogue of Vertebrate Animals of New Jersey . . .

<Geology of New Jersey. By authority of the legislature. George H. Cook, State Geologist, . . . 1868—Appendix E, or pp. 751-830. ("FISHES," pp. 803-830.)

237 species, of which 194 are marine and 43 fresh-water, are recorded; but many of the names are synonyms, and the list bears evidence of being a compilation, and must be consulted with caution.

AYRES (William O . . .). Enumeration of the Fishes from Brookhaven, Long Island, with Remarks upon the Species observed. . . . <Boston Journal of Natural History, . . . vol. IV, 1844, pp. 255-264 (September, 1842); 265-292 (April, 1843).

61 species are enumerated, including 9 fresh-water species, and observations on the characters and habits of most are recorded.

4 species are enumerated as new (*Cottus variabilis* [*Cottus octodecim-spinosus*?], *Gasterosteus millepunctatus* [*Apeltes quadracus*?], *Fundulus fuscus* [= *Melanura*], and *Carcharias griseus* [= *Engomphodus littoralis*]), the last three of which were described in a succeeding article (Description of four species [including *Leuciscus nasutus*] of Fish from Brookhaven, L. I., all of which are believed to be new), <op. cit., iv, pp. 293-303, pl. 12.

BAIRD (Spencer Fullerton). Report on the Fishes observed on the Coasts of New Jersey and Long Island during the Summer of 1854, by Spencer F. Baird, Assistant Secretary of the Smithsonian Institution. <Ninth Annual Report of the Smithsonian Institution [for 1854], 1855, pp. 317-352 + *337.

Reprinted as a pamphlet, with an index, and the following title:

Report to the Secretary of the Smithsonian Institution, on the Fishes of the New Jersey Coast, as observed in the Summer of 1854, by Spencer F. Baird, Assistant Secretary Smithsonian Institution. From the Ninth Annual Report of the Smithsonian Institution for 1854. Washington: Beverley Tucker, Senate Printer, June, 1855. [8vo, 40 pp.]

67 species, of which 57 are marine, or brackish-water, and 10 fresh-water, were observed, and valuable notes on habits and color in a fresh state were recorded.

DEKAY (James E. . . .). Letter from J. E. DeKay, of the Zoological Department, May 7, 1839. <State of New York, Communication from the Governor, transmitting Several Reports relative to the Geological Survey of the State. 1840, pp. 7-14.

A mere list of species, of no value.

— Report of J. E. DeKay, of the Zoological Department [on the Fauna of New York. December 20, 1839]. <Ib. pp. 15-36.

A list like the preceding.

— Zoology of New-York, or the New-York Fauna; comprising detailed descriptions of all the animals hitherto observed within the State of New-York, with brief notices of those occasionally found near its borders, and accompanied by appropriate illustrations. By James E. DeKay. Part IV. Fishes.—Albany: printed by W. & A. White & J. Visscher. 1842. [4to, xiv [1, errata], 415 pp.; atlas, 1 p. l., 79 p. l.]

Descriptions (and, in most cases, figures) of 335 nominal species are given, exclusive of the "extra-limital species" especially so designated, but including some that are really such. Of these 335 nominal species, 265 (including Labraces, Gasterosteidae, Anguillidae) are salt- or brackish-water, and 70 fresh-water.

FABRICIUS (Otto). Fauna Grœnlandica, systematice sistens animalia Grœnlandiæ occidentalis hactenus indagata, quoad nomen specificum, triviale, vernaculumque; synonyma auctorum plurimum, descriptionem, locum, victum, generationem, mores, usum, capturamque singuli, prout detegendi occasio fuit, maximaque parte secundum proprias observationes Othonis Fabricii ministri evangelii, quondam Grœnlandis ad coloniam Friderichshaab, . . . Hafniæ et Lipsiæ, impensis Ioannis Gottlob Rothe, . . . MDCCLXXX. [8vo.]

Contains descriptions and notices of 44 species.

FORTIN (Pierre). List of the Cetacea, Fishes, Crustacea, and Mollusca, which now inhabit and have inhabited the Canadian shores of the Gulf of St. Lawrence, and are the object of fishing operations, whether on a large or small scale, and which are used as bait, &c., &c. <Annual Reports of Pierre Fortin, Esq., magistrate in command of the expedition for the protection of the fisheries in the Gulf of St. Lawrence, during the seasons of 1861 and 1862. (Quebec, 1863), pp. 109-124.

— Continuation of the List of Fish [of] the Gulf and River St. Lawrence. <Annual Reports of Pierre Fortin, Esq., [commanding] the expedition for the protection of the fisheries in the Gulf of St. Lawrence, during the season of 1863, (pp. 60-72), 1864, (pp. 61-69), 1865, (pp. 69-79). (Quebec, 1864-1866.)

The title of each report is slightly varied.

GILL (Theodore Nicholas). Catalogue of the Fishes of the Eastern Coast of North America, from Greenland to Georgia. . . . January, 1861. [8vo, 63 pp.] Issued as an appendix to the "Proceedings of the Academy of Natural Sciences of Philadelphia, 1861."

A list of 394 nominal species, with references, to facilitate identification, to Storer's Synopsis of the Fishes of North America, and, for species not mentioned therein, to other authorities.

—— Synopsis of the Fishes of the Gulf of St. Lawrence and Bay of Fundy. . . .
 <The Canadian Naturalist and Geologist: a bi-monthly journal of natural science, conducted by a committee of the Natural History Society of Montreal. New series, vol. II, pp. 244-266; August, 1865.

A list of 95 species, of which 81 are marine and brackish, and 14 fresh-water. Dichotomous synoptical tables are given of the orders, suborders, and families, and brief diagnoses of the genera and (where more than one in the genus) of the species.

HOLBROOK (John Edwards). Southern Ichthyology; or, A Description of the Fishes Inhabiting the waters of South Carolina, Georgia, and Florida. By John Edwards Holbrook, M. D., Professor of Anatomy in the Medical College of the State of South Carolina; [etc.] Illustrated with colored engravings, done from life, by J. H. Richard. New York and London: Wiley & Putnam. 1847. No. II. [4to, pp. 1-32, pl. 1-4.]

No others published.

—— [Catalogue of the Fish of the State of Georgia.] <Statistics of the State of Georgia: . . . By George White.—Savannah: W. Thorne Williams. 1849. (Catalogue of the Fauna and Flora of the State of Georgia. Prepared for this work by eminent naturalists. pp. 16-20.)

A list, without notes or remarks, of 140 species, 117 of which are salt- or brackish-water, and 23 fresh-water (excluding the eel).

—— Ichthyology of South Carolina. By John Edwards Holbrook, M. D., Professor of Anatomy in the Medical College of the State of South Carolina; [etc.] Charleston, S. C.: published by John Russell. 1855. [4to, title, pp. 1-182, pl. 1-27.]

Issued in numbers, and terminating in the middle of the description of "*Saurus feters*." Descriptions of 52 species and illustrations of 54 are given.

—— Ichthyology of South Carolina. By John Edwards Holbrook, M. D., [etc.] Vol. I. Charleston, S. C.: published by Russell & Jones. 1860. [4to, title, 4 p. l. (preface), 205 pp., 28 pl.]

This edition was also issued in numbers (10), and was printed by Welch, Bigelow & Co., Cambridge. The descriptions and sequence, with some slight modifications, are the same as in the previous editions, but the plates are new. 56 species are described and illustrated, of which 43 are marine and 8 fresh-water.

A collation of both editions of Holbrook's work is given in a "Review of Holbrook's Ichthyology of South Carolina," [by Theodore Gill,] in the American Journal of Science and Arts (Silliman's), 2d series, vol. XXXVII, pp. 89-94, January, 1864.

HOLMES (Ezekiel). Dr. Holmes' Report on the Fishes of Maine, including some of the Elementary Principles of Ichthyology. (<Part I. Reports upon the Zoology and Botany of the State of Maine.) <Second Annual Report upon the Natural History and Geology of the State of Maine. 1862. pp. 11-117.

The "Second Annual Report upon the Natural History and Geology of the State of Maine. 1862," although paged separately (pp. 1-447), had only this—a bastard-title, and formed an appendix to (although not so specified), and was bound with the "Seventh Annual Report of the Secretary of the Maine Board of Agriculture. 1862. Augusta: Stevens & Sayward, Printers to the State. 1862."

The list of fishes embraces 76 species, and was principally based on a manuscript; of this number, 57 were marine and brackish-water, and 19 fresh-water.

KNIGHT (Thomas F . . .). [1] Descriptive Catalogue of the Fishes of Nova Scotia. By Thomas F. Knight, . . . *E mari merces*. Published by direction of the Provincial Government.—Halifax, N. S. Printed by A. Grant, Printer to the Queen's Most Excellent Majesty. 1866. [8vo, 54 pp.]

40 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

51 nominal species of fishes are enumerated and (in most cases described) observations on habits, &c., recorded; 44 of the species are salt- or brackish-water forms, and 7 fresh-water.

— [2] *Shore and Deep Sea Fisheries of Nova Scotia*. By Thomas F. Knight, . . . *E mari merces*. Published by direction of the Provincial Government.—Halifax, N. S. Printed by A. Grant, Printer to the Queen's Most Excellent Majesty. 1867. [8vo, vi (1 l.), 113 pp.]

With pinkish paper-covers, respectively entitled, at middle half (1, 2), Pamphlets on the Fishes and Fisheries of Nova Scotia. (1)—No. I. Fishes of Nova Scotia, and (2)—No. II. Shore and Deep Sea Fisheries.

As indicated by the title, this report is chiefly devoted to the fisheries from an economical and political point of view.

LINSLEY (James Harvey). Catalogue of the Fishes of Connecticut, arranged according to their natural families; prepared for the Yale Natural History Society, . . . <The American Journal of Science and Arts. Conducted by B. Siliman. (New Haven), xlvii, 1844, pp. 55-80.

A list of 173 nominal species, of which 145 are salt- or brackish-water, and 25 fresh-water.

LYMAN (Theodore). Fishes taken in the Waquoit Wier, April 18 to June 18, 1871. Sixth Annual Report of the Commissioners on Inland Fisheries for the year ending January 1, 1872. Boston: Wright & Potter, State Printers, . . . 1872.

"Most of the nomenclature is by Dr. Franz Steindachner; and some notes by Professor Agassiz are added, marked Ag."

The list enumerates 44 species, and is enriched with observations on the economical relations and habits of some of the species.

MITCHILL (Samuel Latham). Report, in part, of Samuel L. Mitchill, M. D., Professor of Natural History, &c., on the Fishes of New-York.

I. Apodal.—Eel—silver-fish.

II. Jugular.—Cod—blenny—stomodon.

III. Thoracic.—Flounder—sea-basse—mackerel—gurnard—dolphin.

IV. Abdominal.—Salmon—pike—elops—silver-side—mullet—flying-fish—polynemus—herring—carp—perch—black-fish—bergal—striped basse—weak-fish.

V. Chondropterygious.—Sturgeon—shark—ray—lamprey.

VI. Branchiostegious.—Toad-fish—sun-fish—sea-horse—fishing-frog.

* * Those marked thus * have been described from fresh specimens; with this note ♂ ♀ are supposed to be species unknown to the systems, or not plainly enough described; and by this sign ¶ may be used for human food.

The new genera are four, *Stomodon* [= *Mertucius* Raf.], *Morone*, *Tautoga*, and *Roccus*.

A very considerable number of fishes, well known to the author of these beginnings of an attempt, are not even named in the present list, because they have not come to hand during the few weeks that have elapsed since its commencement. Such are the pond-fish, king-fish, sheeps-head, and a multitude more.

New York: printed by D. Carlisle, No. 301 Broadway, January 1, 1814. [12mo, 28 pp., including title.]

To avoid all doubt, it may be specifically stated that the title above given is an exact transcript (kindly furnished by Mr. Brevoort) of the title-page of the work.

— The Fishes of New York, described and arranged. . . . <Transactions of the Literary and Philosophical Society of New-York: . . . , vol. I, 1815, pp. 355-492, pl. 1-6.

In the introductory remarks, 147 species (and, in addition, 19 varieties) are summed up. These are arranged according to Shaw's modification of the Linnean system, and the generic diagnoses are mostly copied (sometimes with slight verbal modifications)

from Shaw's work. 60 of the species are illustrated (mostly from drawings by Dr. Akerly, a brother-in-law of Dr. Mitchell) on 6 steel-plates.

The preceding work appears to have been translated into French by F. J. Meisser, a physician of Brussels, it being apparently the work referred to under the title: "Mémoire sur l'ichthyologie de l'Amérique Septentrionale, par Mitchell, traduction de l'anglais," in Vandermaelen's Dictionnaire des hommes des lettres, des savans et des artistes de la Belgique (1837), p. 29. I have never seen the work.

— Memoir on Ichthyology. The Fishes of New York described and arranged. In a supplement to the Memoir on the same subject, printed in the New-York Literary and Philosophical Transactions, vol. I, pp. 355-492. By Samuel L. Mitchell. <The American Monthly Magazine and Critical Review, vol. II (New-York: 1817-1818), pp. 241-248 (February, 1818); 321-328 (March, 1818).

In this supplement 42 nominal species are added, of which 31 are given as marine and 11 are enumerated as fresh-water; but two of the latter ("the fresh-water eel," and "long-jawed fresh-water pike," or *Belone*) are really rather salt- or brackish-water species.

PERLEY (M . . . H . . .). Report upon the Fisheries of the Bay of Fundy. By M. H. Perley, Esquire, Her Majesty's Emigration Officer at Saint John, New Brunswick, . . . Fredericton: J. Simpson, Printer to the Queen's Most Excellent Majesty. 1851. [8vo, viii, 176 pp.]

Contains a list of 55 nominal species, of which 42 are salt-water and 13 fresh-water.

— Descriptive Catalogue [in part] of the Fishes of New Brunswick and Nova Scotia, by M. H. Perley, Esquire, Her Majesty's Emigration Officer at Saint John, New Brunswick. [Second edition.] Fredericton: J. Simpson, Printer to the Queen's Most Excellent Majesty. 1852. [8vo, cover-title, 50 pp.]

Contains a list of 62 nominal species, of which 49 are salt-water and 13 fresh-water. It is a second edition of the catalogue in the preceding work (pp. 118-159).

POEY (Felipe). Conspectus Piscium cubensium. Extrait des Memorias sobre la Historia natural de la isla de Cuba, tome 2^e, dont la pagination a été conservée. Par Felipe Poey. Habana, 1861: imprenta de la viuda de Bareina y compañía, calle de la Reina, num. 6. [8vo, title, pp. 357-404.]

An extract from the following work:

— Memorias sobre la Historia natural de la isla de Cuba, acompañadas de sumarios latonis, y extractos en Frances. Por Felipe Poey, catedrático de zoología y de anatomía comparada de la real universidad de la Habana, y socio fundador de la Sociedad Entomologica de Francia. Toma 2^a. Habana: imprenta de la viuda de Bareina, calle de la Reina, num. 6, 1856-1858.

— Synopsis Piscium cubensium. Catalogo razonado de los peces de la isla de Cuba, extractado del Repertorio físico-natural de la isla de Cuba, Director Felipe Poey, tome 2^e, página 279 y siguientes [365]. Por Felipe Poey. Habana, 1861: imprenta de la viuda de Bareina y comp^a, calle de la Reina, No. 6. [8vo, 1 title, pp. 279-465.]

Although primarily catalogues of Cuban, and therefore extra-limital, forms, they are almost indispensable to the investigator of the North American species.

PUTNAM (Frederick Ward). [Fishes of Essex County, Massachusetts.] <Proceedings of the Essex Institute, vol. I, pp. 144, 148, 201, . . . 1855-'6.

Discontinued after the third article; 22 species (Percidæ—Scombridæ) were enumerated.

REINHARDT (Johan). Fortegnelse over Grönlands Pattedyr, Fugle og Fiske. . . . <RINK (H . . .) Grönland, geographisk og statistisk beskrevet. Kjöbenhavn, 1857.

Reprinted (from same types) with rest of natural history in the following work :

Naturhistoriske Bidrag til en Beskrivelse af Grönland, af J. Reinhardt, J. C. Schiötte, O. A. L. Mörch, C. F. Lütken, J. Lange, H. Rink . . . Kjöbenhavn. Louis Kleins Bogtrykkeri. 1857, (pp. 20-27.)

A nominal list of 69 species, with references to original descriptions, or to the Fauna Grönländica of Fabricius, and with the names current among the Esquimaux. Only four of the species (Salmonidæ) are fresh-water.

The same list (but without the references to authorities) was translated and published in Etzel's (Anton von) Grönland geographisch und statistisch beschrieben. Aus dänischen Quellschriften. Stuttgart, J. G. Cotta'scher Verlag. 1860. (pp. 582-584.)

RICHARDSON (John). Fauna Boreali-Americana; or, the Zoology of the Northern Parts of British America: containing Descriptions of the Objects of Natural History Collected on the late Northern Land Expeditions under the command of Captain Sir John Franklin, R. N. Part third. The Fish. By John Richardson, M. D., F. R. S., F. L. S., . . . , Surgeon and Naturalist to the Expeditions. Illustrated by numerous plates. Published under the authority of the Right Honourable the Secretary of State for Colonial Affairs.—London: Richard Bentley, New Burlington street. MDCCCXXXVI. [4to, xv, 327 (+1) pp., 24 pl. (numbered 74-97).]

SCHÖPFF (Johann David). Beschreibung einiger nord-amerikanischer Fische, vorzüglich aus den Neu-Yorkischen Gewässern, . . . <Schriften der Gesellschaft naturforschender Freunde zu Berlin. viii, 138-194, 1788.

SMITH (Jerome Van Crowninshield). Natural History of the Fishes of Massachusetts, embracing a practical essay on angling. By Jerome V. C. Smith, M. D. [Cut.] Boston: Allen and Ticknor. 1833. [12mo, vii, 399 (+1) pp.]

An exceptionally and even ludicrously erroneous and worthless compilation. Its character was exposed in "Remarks on the 'Natural History of the Fishes of Massachusetts, . . . ' Read before the Boston Society of Natural History, March 20, 1839. By Dr. Humphreys Storer, M. D. <American Journal of Science and Arts (Silliman's), vol. XXXVI, July, 1839, pp. 337-349." According to Dr. Storer (p. 348), the work of his compatriot contains "notices of 105 species, of which 80 are foreigners, and but 25 are found in the waters of our State. Of these 105 species, 36 are illustrated by figures; of these 36 illustrations, but 9 accompany species which are found on our coast; of these 9 figures, 6 are copied from 'Strack's Plates,' and 3 from Mitchill's 'Fishes of New York;' of the 36 illustrations [small wood-cut figures] contained in this 'History,' not one is drawn from nature."

— A Catalogue of the Marine Fishes taken on the Atlantic Coast of Massachusetts. . . . [Also, "Fishes found in the Rivers, Mountain-Streams and Ponds of Massachusetts."] <Report on the Geology, Mineralogy, Botany, and Zoology of Massachusetts, . . . By Edward Hitchcock, . . . Boston, 1833, pp. 553-554.

A list of 52 nominal species of marine and 17 of fresh-water fishes.

— [Revised Catalogue of the Fishes of Massachusetts.] <Op. cit., 1833, pp. 597-598.

A list of 102 nominal species, 83 of which (including the Bodiani=Morone) are salt- or brackish-water, and 19 fresh-water.

— A Catalogue of the Marine and Fresh-Water Fishes of Massachusetts, . . . <Op. cit., second edition. Boston, . . . , 1835, pp. 534-538.

A list of the same character as the preceding, enumerating 106 nominal species (and 2 varieties), of which 89 are salt- or brackish-water, and 17 fresh-water. Reduced (pp. 15-18) in the "Catalogues of the Animals and Plants of Massachusetts." (Edited by Edward Hitchcock), Amherst, 1835, reprinted (same type) from the second edition of the above-cited work.

The catalogue is a repetition of the names (without descriptions or remarks) of the author's "Natural History of the Fishes of Massachusetts."

This compilation was also criticised (by Dr. D. H. Storer) in 1837 in "An Examination of the 'Catalogue of the Marine and Fresh-water Fishes of Massachusetts,' by J. V. C. Smith, M. D.," contained in Professor Hitchcock's "Report on the Geology, Mineralogy, &c., of Massachusetts. By D. Humphreys Storer, M. D." <Boston Journal of Natural History, . . . vol. I, pp. 347-365, pl. viii (May, 1836).

STORER David Humphreys. A Report on the Fishes of Massachusetts. By D. Humphreys Storer, M. D. <Boston Journal of Natural History, . . . , vol. II, 1839, pp. 289-558, pl. vi-viii.

Descriptions are given of 107 nominal species, 91 of which are salt- or brackish-water, and 16 fresh-water; in the concluding remarks, 9 additional undeterminate species are indicated as probable inhabitants of the Massachusetts waters.

— Supplement to the Ichthyological Report. <Ib., vol. III, 1841, pp. 267-273.

— Additional Descriptions of, and Observations on, the Fishes of Massachusetts. 1842. <Ib., IV, 1844, pp. 175-190.

A second supplement to the report.

— Reports on the Ichthyology and Herpetology of Massachusetts. By D. Humphreys Storer, M. D. . . . <Reports on the Fishes, Reptiles, and Birds of Massachusetts. Published agreeably to an order of the legislature, by the commissioners on the zoological and botanical survey of the State. Boston: Dutton & Wentworth, State Printers. 1839. [8vo, xii [+ 2 l.], 426 pp., 4 pl.], pp. 1-253, with half-title,—Fishes of Massachusetts,—pp. 1-202, pl. 1-3.

The report on the fishes is the same as that published in the "Boston Journal of Natural History," but (1) an entirely different introduction is added, (2) the supplementary observations on "*Carcharias obscurus*" (B. J., III, 558) are omitted, and (3) supplementary observations are added (pp. 405-409) on several species.

The plates are apparently printed from the same lithographic stones.

— A Synopsis of the Fishes of North America. . . . <Memoirs of the American Academy of Arts and Sciences. New series. Vol. II. (Cambridge, 1846), pp. 253-550.

739 nominal species from all North America (including the West Indies) are described. The descriptions, however, are mostly inaptly compiled and insufficient.

— A Synopsis of the Fishes of North America. By David Humphreys Storer, M. D., A. A. S., . . . Cambridge: Metcalf and Company, printers to the university. 1846. [4to, 1 p. l. (= title), 298 pp.]

A reprint, with separate pagination, title-page, and index, of the preceeding.

— [Catalogue of the Fishes of South Carolina.] <Report on the Geology of South Carolina. By M. Tuomey, . . . Columbia, S. C. . . . 1848. Appendix.—Catalogue of the Fauna of South Carolina. [Edited by Lewis R. Gibbes. pp. i-xxiv]—4. Class. Fishes. [By D. H. Storer, pp. x-xiii.]

A nominal list of 140 species (23 of which are fresh-water species), representing 90 genera, is given; it is little trustworthy.

— A History of the Fishes of Massachusetts. By David Humphreys Storer. <Memoirs of the American Academy of Arts and Sciences (Boston), new series, viz:—

(1.) V, pp. 49-92, pl. 1-8, 1853;

(2.) V, pp. 122-168, pl. 9-16, 1853;

(3.) pp. 257-296, pl. 17-23, 1855;

(4.) VI, pp. 309-372, pl. 24-29, 1858;

(5.) VIII, pp. 389-434, pl. 30-35, 1863;

(6.) IX, pp. —, pl. 36-39, 1867.

134 species are described and (except one—the *Pholis subbifurcatus*=*Eumesogrammus subbifurcatus*) illustrated, and, in an appendix, a nominal list (by Mr. Frederick Putnam, of Salem) of 21 additional species is published. Of the 134 species, 116 are salt- or brackish-water, and 18 fresh-water.

— A History of the Fishes of Massachusetts. By David Humphreys Storer, M. D., A. A. S. . . . (Reprinted from the Memoirs of the American Academy of Arts and Sciences.)—Cambridge and Boston: Welch & Bigelow and Dakin & Metcalf. 1867. [4to, 2 p. l., 287 pp., 39 pl.—pl. 39 folded.]

As indicated on the title-page, a reprint of the preceding, or rather a collection of extras of the several parts of that work separately and consecutively paged, and with independent title-page and index.

STORER (Horatio Robinson). Observations on the Fishes of Nova Scotia and Labrador, with Descriptions of New Species. . . . (1850). <Boston Journal of Natural History, VI, 1857, pp. 247-270, pl. 7-8.

A list of 29 species.

II.

The following titles of articles by the author are appended for the purpose of affording ready reference to papers wherein are given the reasons for many of the changes in the nomenclature of the species enumerated in the catalogue. The articles are designated in the sequence adopted in the classification used in the catalogue. The arguments for the adoption of the names used for the species of several families, in most cases, are given in the articles on those families cited.

GILL (Theodore Nicholas). Synopsis of the Pleuronectoids of the Eastern Coast of North America. . . . <Proceedings of the Academy of Natural Sciences of Philadelphia, 1864, pp. 214-224.

— Synopsis of the North American Gadoid Fishes. . . . <P. 1863, pp. 242-254.

— Synopsis of the Family of the Lycodoidæ. . . . <P. 1863, pp. 254-262.

— On the cranial characteristics of *Gadus* [*Microgadus*] *proximus*, Grd. [type of the genus *Microgadus*]. . . . <P. 1865, p. 69.

— Synopsis of the Uranoscopoids. . . . <P. 1863, pp. 108-117.

— Synopsis of the Cyclopteroids of Eastern North America. . . . <P. 1864, pp. 189-194.

— On the Gobioids of the Eastern Coast of the United States. . . . <P. 1863, pp. 267-271.

— Note on the Species of *Sebastes* of the Eastern Coast of North America. . . . <P. 1863, pp. 333-335.

— Description of a New Species of *Chærojulis* from North Carolina. . . . <P. 1863, pp. 205-207.

— Synopsis of the Carangoids of the Eastern Coast of North America. . . . <P. 1862, pp. 430-443.

— Catalogue of the North American Sciaenoid Fishes. . . . <P. 1863, pp. 28-32.

— On the Liostominae. . . . <P. 1861, pp. 89-93.

— On the Haploidonotinae. . . . <P. 1861, pp. 100-105.

— Revision of the Genera of North American Sciaeninae. . . . <P. 1861, pp. 79-89.

— On the Genus *Anisotremus*, Gill. . . . <P. 1861, pp. 105-108.

— Monograph of the Genus *Labrax*. . . . <P. 1860, pp. 108-119.

— Notes on the Nomenclature of Genera and Species of Echeiroidæ. . . . <P. 1864, pp. 59-61.

— Synopsis of the Eastern American Sharks. . . . <P. 1864, pp. 258-265.

ALPHABETICAL INDEX.

Page	Page	Page
Acanthurus 33	Archosargus 27	Black-will 28
Achirus 16	Argentinine 11	Blenniidae 8, 20
Acipenser 34	Argyriosus 25	Blenniinae 8
Acipenseridae 12, 34	Argyrotænia 29	Blennioidea 7, 8
Acipenserine 12	Argyrotæniinae 10	Blennius 20
Actinochir 21	Arinæ 11	Blenny 20
Ælurichthys 33	Ariopsis 33	Blepharichthys 25
Ætobatinae 12	Aspidophoroides 22	Blower 15
Ætobatis 34	Asternopteryx 20	Blue-fish 23, 26, 28, 29
Agonidae 8, 22	Astrosopus 20	Blue-back 33
Agonine 8	Atherina 30	Blue-perch 23
Agonus 22	Atherinidae 10, 30	Boca dulce 35
Akulliakitsok 18, 19	Aulostomoidea 6	Bone-dog 36
Albicore 24	Aumtug 33	Bonito 24
Albula 32	Bairdiella 27	Bony-fish 33
Albulidae 11, 32	Balistes 15	Boreogadus 17
Alccrin 35	Balistidae 6, 15	Box-fish, hairy 15
Alewife 33	Balistinae 6	spiny 15
Alleterato 24	Balistoidea 6	Bramidae 9, 26
Alopeciidae 12, 35	Barb 27	Branchiostoma 36
Alopius 35	Barbero 23	Branchiostomidae 13, 36
Alosa 23	Barracuda, northern 30	Bream 23, 27
Alutera 15	Basking-shark 35	Brevoortia 33
American angler 14	Bass 27	Brosminæ 7
Amersulak 18	black 28	Brosmius 18
Ammocetes 36	red 27	Brotulidae 7, 18
Ammodytes 29	sea 27	Brotuloidea 7
Ammodytidae 10, 29	spotted 27	Bunker 33
Ammodytoidea 10	striped 29	Burgall 23
Ammodytinae 10	Bat-fish 14, 21	Butter-fish 19, 20, 26
Anarrhichas 20	Batrachidae 8, 20	Butterfly-ray 34
Anarrhichadidae 8, 20	Batrachoidea 8	Bythites 18
Anchovy 33	Batrachus 20	Bythitinae 7
Angel-fish 24, 29, 35	Bellows-fish 14	Caballa 24
Anguilla 33	Belone 30	Calico 16
Anguillidae 8, 11	Belonidae 10, 30	Capelin 32
Anisarchus 19	Bergall 23	Carangidae 9, 24
Anisotremus 28	Berycidae 9, 26	Caranginae 9
Antennariidae 6, 14	Berycoidea 9	Carangops 25
Antennariinae 6	Big-eye 29	Carangus 25
Antennarioidea 6	Bill-fish 30	Carcharodon 35
Apeltes 16	Bishop-ray 34	Careproctinae 8
Apogonichthys 29	Black-bass 28	Careproctus 21
Apogonine 10	Black-fish 23, 28	Carolina robin 21
Aprionodon 35	Black-harry 28	Casabe 25
Archagonus 22	Black-perch 28	Cat-fish 20

Page	Page	Page
Cat-fish, sea..... 33	Cod-fish..... 17	Dog-fish, smooth..... 35
Cavallé..... 25	Codling..... 17, 18	Dollar-fish..... 26
Centriscidæ..... 6, 15	Cojinua..... 25	Dolphin..... 25
Centriscoidæ..... 6	Conger-eel..... 19, 33	Dormitator..... 21
Centriscus..... 15	Congridæ..... 11, 33	Dorosoma..... 33
Centrobrennius..... 19	Congrinæ..... 11	Dorosomidæ..... 11, 33
Centrolophinae..... 9	Conner..... 23	Dules..... 28
Centronotinae..... 9	Cornuda..... 35	Dussumieridæ..... 11, 32
Centropristis..... 28	Coryphæna..... 25	Echeneididæ..... 10, 30
Centrosyllium..... 36	Coryphænida..... 9, 25	Echeneidoidea..... 10
Cephalopteridæ..... 12, 34	Coryphæninæ..... 9	Echeneis..... 30
Ceratacanthus..... 15	Coryphænoides..... 17	Eel, common..... 33
Ceratias..... 14	Cottidæ..... 8, 22	conger..... 33
Ceratiidæ..... 6, 14	Cottinæ..... 8	Eel-pout..... 19
Ceratoptera..... 34	Cottoidea..... 8	Elacate..... 29
Cetorhinidæ..... 12, 35	Cottus..... 22	Elacatidæ..... 10, 29
Cetorhinus..... 35	Coverclip..... 16	Elasmobranchii..... 12
Chænopsetta..... 17	Cow-pilot..... 23	Eleotridinæ..... 8
Chaetodontidæ..... 8, 24	Crab-cater..... 29	Elopidae..... 11, 32
Chaetodontinæ..... 8	Cramp-fish..... 34	Elopoidea..... 11
Chaetodontoidea..... 8	Crevallé..... 25	Elops..... 32
Charioteer..... 28	Croaker..... 27	Enchelycephali..... 11
Chasmodon..... 20	Cryptacanthidæ..... 7, 19	Engraulidæ..... 11, 33
Chauliodontinæ..... 11	Cryptacanthodes..... 19	Engraulis..... 33
Checutts..... 26	Cunner..... 23	Ephippiidæ..... 10, 29
Cherna de novero..... 28	Cusk..... 18	Epinephelus..... 28
Chicharro..... 25	little..... 18	Erizo..... 15
Chuckwick..... 26	Cybium..... 24	Etrumeus..... 32
Chilichthys..... 15	Cyclopteridæ..... 8, 21	Euchalarodus..... 16
Chilodipteridæ..... 10, 29	Cyclopterinae..... 8	Eucinostomus..... 27
Chilomycterus..... 15	Cyclopteroidea..... 8	Eugomphodus..... 35
Chirostoma..... 30	Cyclopterus..... 21	Eulamia..... 35
Chloroscombrinae..... 9	Cynoscion..... 26	Euleptorhamphus..... 31
Chloroscombrus..... 25	Cyprinodon..... 31	Eumesogrammus..... 19
Choerophilus..... 23	Cyprinodontidæ..... 11, 31	Eumicrotremus..... 21
Chogset..... 23	Cyprinodontinæ..... 11	Exocetinae..... 10
Chondrostei..... 12	Cyprinodontoidea..... 11	Exocetus..... 30, 31
Chopa-banca..... 27	Cypselurus..... 31	Fair-maid..... 27
Chub..... 27	Dab, American..... 16	Fall-shad..... 33
Chuss..... 17	Arctic..... 17	Fat-back..... 33
Ciliata..... 18	long..... 16	Ferraro..... 36
Ciliatinae..... 7	Massachusetts..... 17	File-fish..... 15
Cirrostromi..... 13	rusty..... 16	Fishes, true..... 6
Citharichthys..... 17	Dactylopterinae..... 8	Fishing-frog..... 14
Civetta de mare..... 21	Dactylopterus..... 21	Fistularia..... 16
Clupea..... 33	Decapterus..... 25	Fistulariidæ..... 6, 16
Clupeidæ..... 11, 33	Dentuda..... 35	Flasher..... 29
Clupeinae..... 11	Devil-fish..... 14, 34	Flat-fish..... 16
Clupeoidea..... 11	Diodontidæ..... 6, 15	Flounder, common..... 17
Coachman..... 28	Diodontinae..... 6	Flounder, four-spotted..... 17
Coal-fish..... 17	Diplectrum..... 28	southern..... 17
Cocciinae..... 11	Doctor-fish..... 23	sand..... 17
Cock-paddle..... 21	Dog-fish, picked..... 36	summer..... 17

Page		Page	Page
Flying-fish..... 21, 30	Hake..... 27	Icelus..... 22	
Flying-robin..... 21	American..... 18	Inmingoak..... 17	
Fool-fish..... 15	European..... 18	Isabelita..... 24	
Fork-beard..... 17	old English..... 17	Isospondyli..... 11	
Fox-shark..... 35	silver..... 18	Isurinae..... 12	
Friar..... 30	squirrel..... 17	Isuropsis..... 35	
Frog-fish..... 14	white..... 17	Iverksoak..... 18	
Frost-fish..... 17	Halatractus..... 25	Jew-fish..... 32	
Fundulus..... 31	Halibut..... 17	Jiguagua..... 25	
Gadidae..... 7, 17	Halocyprselus..... 31	Jorobado..... 24, 25	
Gadine..... 7	Haplodonotinae..... 9	Julidinae..... 8	
Gadoidea..... 7	Haplomi..... 11	Jurel..... 25	
Gadus..... 17	Hannahills..... 28	Kaerak..... 20	
Galeocerdo..... 35	Hard-head..... 33	Kigutilik..... 20	
Galeorhinidae..... 12, 35	Harvest-fish..... 26	Killi-fish..... 31	
Galeorhininae..... 12	Hemdurgan..... 23	King-fish..... 24, 27	
Galeorhinoidea..... 12	Hemibranchii..... 6	Kyaak..... 33	
Ganoidea..... 12	Hemirhamphinae..... 11	Labracidae..... 10, 29	
Gaspereau..... 33	Hemirhamphus..... 31	Labridae..... 8, 23	
Gasterosteidae..... 6, 16	Hemitripteridae..... 8, 23	Labrine..... 8	
Gasterosteinae..... 6	Hemitripterus..... 23	Labroidea..... 8	
Gasterosteioidea..... 6	Herring..... 33	Lady fish..... 32	
Gasterosteus..... 16	big-eyed..... 32	Lagodon..... 27	
Gerridae..... 9, 27	English..... 33	Lamnidæ..... 12, 35	
Gerreioidea..... 9	round..... 32	Lamnoidea..... 12	
Ghost-fish..... 19	spring..... 33	Lamper-eel..... 19, 36	
Gilt-head..... 27	tailor..... 33	Lamprey..... 36	
Glanostomi..... 12	toothed..... 33	Lamprididae..... 9, 26	
Globe-fish..... 14	Heterosomata... 7, 8, 9, 10	Lampris..... 26	
Glyphidodon..... 23	Himantolophus..... 14	Lancelet..... 36	
Gyptocephalus..... 16	Hippocampidae..... 6, 15	Larimine..... 9	
Gobiidae..... 8, 21	Hippocampinae..... 6	Larimus..... 27	
Gobiinae..... 8	Hippocampus..... 15	Leptagoninae..... 8	
Gobioidea..... 8	Hippoglossinae..... 7	Leptecheneis..... 30	
Gobiosoma..... 21	Hippoglossoides..... 17	Leptoblennius..... 19	
Gobius..... 21	Hippoglossus..... 17	Leptocardiil..... 13	
Goby, black..... 21	Histiophorus..... 24	Leptoclinus..... 19	
scaleless..... 21	Hoe..... 36	Limanda..... 16	
Goody..... 27	Hoe-mother..... 35	Ling..... 17	
Goose-fish..... 14	Hog-choker..... 16	Liopsetta..... 16	
Green-fish..... 29	Hog-fish..... 15, 36	Liostominae..... 9	
Grubby..... 22	Holacanthus..... 24	Liostomus..... 27	
Grun, striped..... 28	Holocentrinae..... 29	Liparididae..... 8, 21	
Gulper..... 34	Holocentrum..... 26	Liparidinae..... 8	
Gurnard, European... 21	Horse-crevallé..... 25	Liparis..... 21	
Gymnacanthus..... 22	Horse-fish..... 15, 24	Liver-shark..... 35	
Gymnelinae..... 7	Horse-mackerel..... 29	Lobotes..... 29	
Gymnelis..... 18	Hydrargyra..... 31	Lobotidae..... 10, 29	
Gymnodontes..... 6	Hydrargyrinae..... 11	Lophiidae..... 6, 14	
Haddock..... 17	Hyperoartia..... 13	Lophioidea..... 6	
Haddock, Norway.... 23	Hyperotreta..... 13	Lophobranchii..... 6	
Hag-fish..... 36	Hypleurochilus..... 20	Lophospsetta..... 17	
Hæmulon..... 28	Hyporthodus..... 28	Lophius..... 14	
Hair-tail, silvery..... 24	Hypsoblennius..... 20	Lotinae..... 7	

	Page		Page		Page
Lumpenus	19	Molva	18	Ostraciontinæ	6
Lump-fish, common....	21	Monacanthinæ.....	6	Ostracoderma	6
spinous.....	21	Monk-fish.....	14, 35	Otolithinæ.....	9
Lump-sucker.....	21	Moon-fish.....	29	Oyster-fish.....	20
Lutjaninæ.....	10	silver.....	24	Paddle.....	21
Lutjanus.....	23	Morone.....	29	Palinurichthys	26
Lycodes	18, 19	Moss-bunker	33	Pallorietta	25
Lycodidæ.....	7, 18	Mouse-fish	14	Pampano.....	35
Lycodinæ.....	7	Mud-dab.....	16	Panhaden (Panhagen). .	33
Lycodoidea.....	7	Mugil.....	30	Paralepididæ.....	11, 32
Mackerel	24	Mugilidæ	10, 30	Paralepidoidea.....	11
bay.....	24	Mugiloidea.....	10	Paralepis.....	32
b'lk-sp'd Span. .	24	Mullet	30	Paratractus.....	25
chub.....	24	Mullidæ	9, 26	Parephippus.....	29
horse.....	24	Mulloidea.....	9	Pediculati.....	6
Spanish.....	24	Mullus.....	26	Pega.....	30
spotted.....	24	Mummachog.....	31	Peprilus.....	26
yellow.....	25	Munnawhatteaug....	33	Percesoces	10
Mackerel-midge	18	Muraenoides.....	19, 20	Perch.....	29
Mackerel-scad.....	55	Murcielago.....	21	black.....	25
Mackerel-shark.....	35	Mustelinæ	12	red.....	23
Macruridæ.....	7, 17	Mustelus.....	35	white.....	29
Macruroidea.....	7	Myliobatidæ.....	12, 34	Percoidea.....	10
Macrurus	17	Myliobatinæ.....	12	Pescador.....	14
Magnosa	35	Myliobatis	34	Pescatrice.....	14
Malacosteus	31	Myliobatoidea.....	12	Pesce	35
Mallotus	32	Myxine.....	36	Petromyzon.....	36
Malthe.....	14	Myxinidæ.....	13, 36	Petromyzontidæ....	13, 36
Maltheidæ	6, 14	Myzopsetta	16	Petromyzontinæ.....	13
Maltheinæ.....	6	Naucrates	25	Pez mola.....	14
Manta	34	Nejorpallujak.....	18	Pez-zorro.....	35
Marsipobranchii.	13	Nematognathi.....	11	Pholis	20
Masticura	12	Nose-fish	14	Phycinæ	7
Matajuelo.....	26, 32	Numb-fish	31	Phycis.....	17
Maurolicus.....	32	Nurse.....	26	Pig-foot.....	23
Megalops.....	32	Obispo.....	34	Pilot.....	25
Melanogrammus.....	17	Odontaspididæ.....	12, 35	Pilot-fish.....	25
Menhaden.....	33	Ojac or Ovak.....	17	Pimelepteridæ.....	10, 27
Menticirrus.....	27	Oncocottus.....	22	Pimelepterus.....	27
Merlucciidæ.....	7, 18	Oneirodes	14	Pipe-fish.....	15
Merluciniæ.....	7	Onos.....	18	Pisces.....	6
Merlucius.....	18	Orthagoriscinæ.....	6	Plagiostomi.....	12
Misarkornak.....	17, 18	Opah.....	26	Plagusia	16
Micristius	31	Ophidiidæ.....	7, 18	Plagusiinæ.....	7
Microgadus.....	17	Ophidioidea.....	7	Plaice, smooth.....	16
Micropogon.....	27	Ophidium.....	18	Plectognathi.....	6
Microstoma.....	32	Opisthonema.....	33	Pleuronectidæ.....	7, 16
Microstomidæ.....	11, 32	Orcyninæ.....	9	Pleuronectinæ.....	7
Microstominæ.....	11	Orcynus	24	Pogonias.....	26
Mishquamauquock... .	32	Orthagoriscidæ.....	6, 14	Pogy.....	33
Missucke-ke-kequok . .	29	Orthagoriscoidea.....	6	Pollachius.....	17
Mola.....	14	Orthoprists.....	28	Pollock.....	17
Molacanthinæ.....	6	Osmerus	32	Polynematoidea.....	8
Molacanthus.....	14	Ostraciontidæ.....	6, 15	Polynemidæ	8, 23

	Page		Page		Page
Pomacentridæ.....	8, 23	Rose-fish.....	23	Sea-cat.....	14, 33
Pomatomidæ.....	10, 29	Rubio.....	21	Sep-devil.....	14
Pomatomus.....	29	Rudder-fish.....	25	Sea-fox.....	35
Pomatomsetta.....	17	Saccopharyngidæ... 11,	34	Sea-herring.....	33
Pomolobus.....	33	Saccopharynx.....	34	Sea-horse.....	15
Pompynose.....	25	Sail-fish.....	24, 35	Sea-owl.....	21
Porcupine-fish.....	15	Salmo.....	32	Sea-perch, red.....	23
Porgy.....	37	Salmon.....	32	Sea-poacher.....	22
Poronotus.....	26	Salmonidæ.....	11, 32	Sea-raven.....	23
Priacanthidæ.....	10, 29	Salmoninæ.....	11	Sea-robin.....	21
Priacanthoidea.....	10	Samonoidea.....	11	Sea-snail.....	21
Priacanthus.....	29	Sand-flounder.....	17	Sea-trout.....	32
Prionotus.....	21	Sand-eel.....	29	spotted.....	26
Pristidæ.....	12, 34	Salmon-trout.....	26	Sebastes.....	23
Pristipomatidæ.....	10, 28	Sand-launce.....	29	Selene.....	24
Pristipomatinae.....	10	Sand-shark.....	35	Sennet.....	30
Pristis.....	34	Sand-smelt.....	30	Serranidæ.....	10, 28
Promicropterus.....	28	Sapo.....	20	Serraninae.....	10
Pseudopleuronectes.....	16	Sarandlik.....	17	Serrano.....	28
Pseudopriacanthus.....	29	Sarandlisksonk.....	17	Shad.....	33
Pteraclinae.....	9	Sarcura.....	12	Shad-herring.....	33
Pteraelis.....	26	Sarda.....	24	Shanny, Bose's.....	30
Pterophryne.....	14	Sargo.....	27	four-banded... 30	
Pteroplatea.....	34	Sarothrodus.....	24	nine-lined... 20	
Pteroplateinae.....	12	Saury.....	31	bone.....	35
Puffer.....	15	Saw-fish.....	34	liver.....	35
Pygosteus.....	16	Scad, big-eyed.....	25	mackerel.....	35
Rabbit-fish.....	15	dotted.....	25	sand.....	35
Raiæ.....	34	Sceloderma.....	6	Shark, Atwood's.....	35
Raiadæ.....	12, 34	Sciænidæ.....	9, 26	blue.....	35
Raiænae.....	12	Sciæninæ.....	9	bull-head.....	35
Raiadidæ.....	12	Sciænoidea.....	9	dusky.....	55
Raiæ.....	12	Sciænops.....	27	hammer-head... 35	
Ray, cow-nosed.....	34	Scaliodon.....	35	man-eater.....	35
clear-nosed.....	34	Scomber.....	24	shovel-head.... 35	
sharp-nosed.....	34	Scomberesocidæ. 10, 11,	30	shovel-nose.... 35	
Razor-fish.....	23	Scomberesocinae.....	11	Shark-ray.....	35
Red-fish.....	23, 27	Scomberesox.....	31	Shecutts.....	26
Red-grouper.....	28	Scombridæ.....	9, 24	Sheep's-head.....	27
Reinhardtius.....	17	Scombrinae.....	9	Siluridæ.....	11, 33
Remoropsis.....	30	Scombroidea.....	9	Siluroidea.....	11
Reniceps.....	35	Scopelidæ.....	11, 32	Silver-gar.....	30
Rhinæ.....	12	Scopelinae.....	11	Silver-perch.....	27
Rhinesomus.....	13	Scopelus.....	32	Silver-sides.....	26, 30
Rhinonemus.....	18	Scoræna.....	23	Skip-jack.....	24, 29, 31
Rhinoptera.....	34	Scorænidæ.....	8, 23	Skippaug.....	33
Rhombinae.....	7	Scoræninæ.....	8	Skipper.....	31
Rhombochirus.....	30	Sculpin.....	22, 23	Skittle-dog.....	36
Rhypticinae.....	10	Scup.....	27	Sleeper-shark.....	36
Roach.....	27	Scuppaug.....	27	Sleeper, striped.....	21
Roccus.....	29	Scymnidæ.....	12, 36	Slime-fish.....	36
Rock-fish.....	29	Scymnoidea.....	12	Smelt.....	32
Rockling, 3, 4, 5.....	18	Sea-ape.....	35	Smooth-hound.....	35
Romero.....	25	Sea-bass.....	28	Snap-mackerel.....	29

	Page		Page		Page
Snapper	23	Swingle-tail	35	Triloburus	28
Snipe-fish	15	Sword-fish, common ..	24	Trisotropis	28
glass-eyed	28	Synentognathi	10, 11	Trout	26
Soap-fish	28	Syngnathi	6	gray	26
Sole, American	16	Syngnathidæ	6, 15	salt-water	26
long	16	Syngnathinæ	6	Trumpet-fish, tobacco ..	16
Soleidæ	7, 16	Syngnathus	15	spotted	16
Soleinæ	7	Synodontidæ	11, 32	Trunk-fish	15
Somniosus	36	Synodus	32	Trygon	34
Sparidæ	10, 27	Tambor	15	Trygonidæ	12, 34
Sparinæ	10	Tautog	23	Trygoninæ	12
Sparus	27	Tautoga	23	Trygonoidea	12
Spear-fish	24	Tautogolabrus	23	Tunny	24
Sphyræna	30	Teleocephali	7	Turbot	17
Sphyrænidæ	10, 30	Teleostei	6	Tusk	15
Sphyrænoidea	10	Tetrapturinæ	9	Unerak	18
Sphyrna	35	Tetrapturus	24	Uranoscopidæ	8, 20
Sphyrnidæ	12, 35	Tetrodon	15	Uranoscopoidea	8
Spinacoidæ	12, 36	Tetrodontidæ	6, 15	Urophycis	18
Squali	12	Tetrodontinæ	6	Verrugato	27
Squalus	36	Tetrodontoidea	6	Vomer	24
Squatina	35	Teuthididæ	8, 23	Vomerinæ	9
Squatinidæ	12, 35	Teuthidoidea	8	Wawwhunnekesnog ..	24
Squeteague or Squit ..	36	Thread-fish	23, 25	Weak fish	26
Squirrel	26	8-threaded ..	23	Whiff	17
Star-gazer	20	Thread-herring	33	Whip-ray	34
Stelliferus	27	Thresher	35	White-fish	27, 33
Stenotomus	27	Tiger-shark	35	Whiting	18, 27
Stephanolepis	15	Toad-fish	14, 20	Carolina	27
Stichæidæ	7, 8, 19	Tom-cod	17	shore	27
Stichæus	19	Torpedinidæ	12, 34	Window-pane	17
Stickle-back	16	Torpedininæ	12	Winter-flounder	16
Stingaree	34	Torpedinoidæ	12	Winter-skate	34
Sting-ray	34	Torpedo	34	Wolf-fish	20
Stomias	31	Torsk	18	Wry-mouth	19
Stomiadidæ	11, 31	Trachinocephalus	32	Xiphias	24
Stomiatinæ	11	Trachurops	25	Xiphidiontidæ	8, 29
Stomiatoidea	11	Trachynotinæ	9	Xiphiidæ	9, 24
Stromateidæ	9, 26	Trachynotus	25	Xiphiinæ	9
Stromateinæ	9	Trichidion	23	Xyrichthyinæ	8
Sturgeon, sharp-nosed ..	34	Trichiuridæ	9, 24	Xyrichthys	23
short-nosed ..	34	Trichiurinae	9	Yellow-tail	27, 33
Sucker	30, 36	Trichiurus	24	Yelting	28
Summer-skate	34	Trichodiodon	15	Zenidæ	9, 26
Sun-fish	14, 35	Trigla	21	Zenopsis	26
Surgeon, black	23	Triglidæ	8, 21	Zoarces	19
Surgeon-fish	23	Triglinæ	8	Zoarclinæ	7
Swell-fish	15	Triglops	22	Zonichthys	25

